

QC SALES ORDER DATA

TO: SALES

CUSTOMER: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SALES ORDER NUMBER: 1888515 ITEM#: 10

PLEASE FIND ATTACHED 1 SET QC DATA FOR THE ABOVE
REFERENCED SALES ORDER.

☒ 1 SET OF DATA SENT TO SHIPPING DEPARTMENT.

REGARDS,

Douglas Hinze

DOUGLAS HINZE

QC SUPERVISOR

FEB 25 2015



Flow Technology

HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 10 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

SPX Flow Technology certifies that the above have been qualified to the requirements of API 6FA Specification and were manufactured in accordance with API-6D Specification.

Douglas Hinze

DH/mt

Quality Control Supervisor



ME
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

SPX
Flow Technology
HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 10 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

SPX Flow Technology certifies that the above have been fabricated and shipped in accordance with the requirements of Enbridge Specification EES124-2013 REV. 1.1 and the Purchase Order Number above.

Douglas Hinze

Douglas Hinze

DH/mt

Quality Control Supervisor



ME
12.12.14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com



Flow Technology

HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 09 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

SPX Flow Technology certifies that the attached mill test reports are in conformance with the applicable codes, standards and specifications.

DH/mt

Douglas Hinze

Quality Control Supervisor



MB
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

M & J Valve – SPX Flow Technology – Houston, Texas

Material Report

S. O. No.	Quantity	Description
1888515 10	7	24" CL 600, MODEL M303 GATE VALVE.

SERIAL NUMBER	HUB	SIDE PL.	BONNET FLG.	BOTTOM PL.	BONNET	L.C. FLG.	CUPOLA	U.C. FLG.	TRANS. PC.	
1000002953697	C									
	H	J77820	SU32873	S19315	12048	S19313	HC0068	389335	448096	
		STEM	GATE	SEATS						
1000002953698	H	172553	J78112	8705						
	C									
	H	J77820	SU32873	S19315	12048	S19313	HC0064	389335	448096	
1000002953699		STEM	GATE	SEATS						
	H	172553	J78112	8705 MM14102465						
	C									
1000002953700	H	J77820	SU32873	S19315	12048	S19313	HC0068	389335	448096	
		STEM	GATE	SEATS						
	H	172553	J78112	8705 MM14102465						
1000002953701	C	J78107								
	H	J78112	SU32873	S19315	12048	S19313	HC0068	389335	448096	
		STEM	GATE	SEATS						
1000002953701	H	172553	J78112	8705						
	C									
	H	J78112	SU32873	S19315	12048	S19315	HC0069	389335	448096	
		STEM	GATE	SEATS						
	H	172553	J78112	8705						



C = Heat Code Number
H = Heat Number (Mill Test Report)

M & J Valve – SPX Flow Technology – Houston, Texas

Material Report

1000002953702	C	J78107										
	H	J78112	SU32873	S19315	11722	S19315	450106	HC0069	389335	448096		
		STEM	GATE	SEATS								
	H	172553	J78115	8705 MM14103021								
1000002953703	C	J78107										
	H	J78112	SU32873	S19315	12048	S19315	460124	HC0069	389335	448096		
		STEM	GATE	SEATS								
	H	172553	J78115	MM14103021								





Metallurgical Chemistry and Testing Laboratory

3204 BROADWAY (77017)
POST OFFICE BOX 262265
HOUSTON, TEXAS 77207-2265
PHONE: (713) 644-7801
FAX: (713) 644-1400
metlab@an-tech.com

September 22, 2014

Page 1 of 1

North Shore Supply Company
Attn: Junior Johnston
P.O. Box 9940
Houston, TX 77213-0940

P.O. No. 247730
Report No. 14-2391-1

IDENTIFICATION: 3.25" x 6" x 8", Tag# 081114-22, HT# J77820, SL# 1751E702
MATERIAL: SA516-70 N
REFERENCE: S/O 1138317

IMPACT TEST

10mm x 10mm CVN @ -50°F
(Longitudinal)

<u>Foot Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>% Shear</u>
84.0	63	30
126.0	88	50
100.0	78	40

Donald Derrick

Mechanical Testing Supervisor

em

Tests were performed in accordance with the An-Tech Laboratories, Inc. Quality Assurance Manual, 2nd Edition, Revision Z dated May 28, 2013. The contents for this report are correct and accurate and that all test results and operations performed by An-Tech are in accordance with the material specification and customer requirements. Our letters and reports are for the exclusive use of the client to whom they are addressed. Our reports apply only to the actual sample tested and are not necessarily indicative of the properties of other identical or similar materials.



Metallurgical Chemistry and Testing Laboratory

3204 BROADWAY (77017)
POST OFFICE BOX 202266
HOUSTON, TEXAS 77207-2266
PHONE: (713) 844-7501
FAX: (713) 844-1400
Website: www.an-tech.com

September 22, 2014

Page 1 of 1

North Shore Supply Company
Attn: Junior Johnston
P.O. Box 9940
Houston, TX 77213-0940

P.O. No. 247730
Report No. 14-2391-4

IDENTIFICATION: 3.25" x 6" x 8", Tag# 080814-24, HT# J7/8107, SL# 1727E680
MATERIAL: SA516-70 N
REFERENCE: S/O 1138317

IMPACT TEST

10mm x 10mm CVN @ -50°F
(Longitudinal)

<u>Foot Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>% Shear</u>
90.0	71	40
112.0	84	40
85.0	67	30

Donald Derrick
Mechanical Testing Supervisor

em

Tests were performed in accordance with the An-Tech Laboratories, Inc. Quality Assurance Manual, 2nd Edition, Revision 2 dated May 28 2013. The contents for this report are correct and accurate and that all test results and operations performed by An-Tech are in accordance with the material specification and customer requirements. Our letters and reports are for the exclusive use of the client to whom they are addressed. Our reports apply only to the actual sample tested and are not necessarily indicative of the properties of other identical or similar materials.

ALABAMA
COLORADO
LOUISIANA
TEXAS
PENNSYLVANIA

Ultrasonic Thickness Measurement/ Flaw Detection Report

Client: North Shore Steel	Job Location	Plate Yard	Inspection Date/Time	09/19/14
	Project	1138317	NVI Job Number	288
Billing Address	P.O. No.	247731	DSCG	
	NVI Procedure	ASTM A578	Acceptance Criteria:	ASTM A578 Level B
Instrument make:	Olympus	Model:	EPOCH 600	Sr. No: 100010507
Probe Frequency:	2.25 Mhz	Size	1"	Degree/Type: 0
Gain:	41 db:	Range:	10" Inches:	Surface Transfer: 0 db:
Reference block:	DSC	Cable length:	6'	Standard Block:
Couplant:	cellulose	Reference Procedure	ASTM A578	Acceptance Criteria: ASTM A578

[illegible]

DATE RECEIVED BY: 1/23/20

HUB 24" 4-6

	TATA STEEL UK LIMITED Park Street Middlesbrough, M.I.1 1PQ. Tel: +44 (0)1639 255100 Fax: +44 (0)1639 255100 Ext. 227		A07	
	INSPECTION CERTIFICATE		A02	
	In accordance with EN 10204 3.1 Product manufactured under TQM Management System approved to ISO 9001		A03	
	Product manufactured under TQM Management System approved to ISO 9001		A04	
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		4011001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR1010259.V2		Contract No.: 4/035
Inspection ONLY		All		4011001
CS2: 0058242		630850		461288/001
A06		E-PUR101		

[illegible]

4276

707

R. A. Rose

2. The Board shall have the right to suspend or terminate the contract of any employee who is found to be in violation of the provisions of this contract.

QUALITY CONTROL RECORD
APPROVED

SEP 30 2014

BY: MARLA TORRES
SPX

EGGS CREST



Metallurgical Chemistry and Testing Laboratory

3204 BROADWAY (77017)
POST OFFICE BOX 262265
HOUSTON, TEXAS 77207-2266
PHONE: (713) 644-7501
FAX: (713) 644-1400
metallab@an-tech.com

September 22, 2014

Page 1 of 1

North Shore Supply Company
Attn: Junior Johnston
P.O. Box 9940
Houston, TX 77213-0940

P.O. No. 247730
Report No. 14-2391-3

IDENTIFICATION: 3.25" x 6" x 8", Tag# 081214-20, HT# J7/8112, SL# 241F729
MATERIAL: SA516-70 N
REFERENCE: S/O 1138317

IMPACT TEST

10mm x 10mm CVN @ -50°F
(Longitudinal)

<u>Foot Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>% Shear</u>
104.0	75	40
135.0	93	60
118.0	81	50

Donald Derrick
Mechanical Testing Supervisor

em

Tests were performed in accordance with the An-Tech Laboratories, Inc. Quality Assurance Manual, 2nd Edition, Revision 2 dated May 28, 2013. The contents for this report are correct and accurate and that all test results and operations performed by An-Tech are in accordance with the material specification and customer requirements. Our letters and reports are for the exclusive use of the client to whom they are addressed. Our reports apply only to the actual sample tested and are not necessarily indicative of the properties of other identical or similar materials.

POSCO Mill Test Certificate/검사증명서

Certificate No./증명서번호: 131219-KPSE-001-002
Date of Issue/발행일자: Dec., 19, 2013

Order No./계약번호: 0005782607

PO No./주문번호: PO 228046

Supplier/주문자: DAE WOO INTERNATIONAL CORP.

Commodity/품명: PLATE

Customer/고객사: NORTH SHORE STEEL

Spec & Type/규격: SA516-70N/SA516-70N(2010)

Size/치수	Product No. 제품번호	Quantity 수량	Weight 중량 (kg) (LBS)	Heat No. 재간번호	Tensile/인장시험			Impact/ 충격시험 V-Notch Energy (Joule)	Hard- ness /경도 HB	D i v i s i o n	Chemical Composition/화합성분(%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					YP (MPa)	TS (%)	EL (%)				U S T	C	Si	Mn	P	S	Cr	Ni	B	Cu	Mo	Nb	Ti																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
*** HEAT TREATMENT ***=> Normalized : 881℃ 41min. ***																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</

* Position : T : Top, M : Middle, B : Bottom
* Tensile Test : Direction : Transversal, Gauge Length : 200mm (Rectangular),
YP Method : 0.2% off-set
* U.S.T (Ultrasonic Test)
* Impact Test : Direction : 1/4T Longitudinal, Full-Size : 10mmX10mm,
T.L.R (Trans Longitude Ratio)
* Division : 1. Ladle Analysis, 2. Products Analysis
* Chemical Composition Unit : -2x1/100, -3x1/1000, -4x1/10000, -5x1/100000
* Supply Condition : As-Rolled unless otherwise Heat Treated.

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process.
Melled & Manufactured in R.O.K.
No repair welding was performed to the products.
This material has been made by vacuum degassing, calcium treated process. This material is fine grained steel.
Test Certificate is issued according to EN10204 3.1
* This Mill Test Certificate cannot be copied for any purpose

Surveyor To:

Cho, Young-Mo

POSCO Gwangyang Works, 700 Geumho-dong, Gwangyang-si, Jeollanam-do, 545-711, Korea

Chief of material testing section Cho, Young-Mo



Certificate No./증명서번호: 131219-KPSE-001-001
Date of Issue/발행일자: Dec. 27, 2013

POSCO Mill Test Certificate/검사증명서 (Attached-Sheet)

Order No./계약번호: 0005782607 PO No./주문번호: PO 228046
Supplier/주문자: DAE WOO INTERNATIONAL CORP. Commodity/품명: PLATE
Customer/고객사: NORTH SHORE STEEL Spec & Type/규격: SA516-70N/A516-70N(2010)

Product No. 제품번호	Chemical Composition/화합성분(%)			
	V	S	Al	CEQ
	-3	-3	-3	-3
PP48634202	L 2	23	426	
	P 3	24		
PP48634101-4102	L 2	23	426	
	P 3	24		
Sub Total	3 8,945 (kg)			
HEAT TREATMENT	Normalized : 891°C 17min. ***			
PP47861301-1302	L 2	28	431	
	P 2	30		
PP47861401	L 2	28	431	
	P 2	30		
Sub Total	3 22,416 (kg)			
HEAT TREATMENT	Normalized : 891°C 41min. ***			
Grade Total	6 31,401 (kg)			
Grand Total	6 31,401 (kg)			

* B/L Date ==> 2013/12/22

* B/L Date ==> 2013/12/22

CEQ (G) = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5

*** Last Item ***

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process.
Melted & Manufactured in R.O.K.

No repair welding was performed to the products.
The material has been made by vacuum degassing, calcium treated process. This material is fine grained steel.
Test Certificate is issued according to EN10204 3.1.
- This Mill Test Certificate cannot be copied for any purpose.

Surveyor To:

Cho, Young-Mo

Chief of material team, Jeonju Cho, Young-Mo

POSCO Gwangyang Works, 700 Geumho-dong, Gwangyang-si, Jeollanam-do, 545-711, Korea



EC CERTIFICATE OF QUALITY SYSTEM APPROVAL

In accordance with the requirements of the Pressure Equipment Directive 97/23/EC and the Pressure Equipment Regulations 1999, UK Statutory Instrument 1999 No. 2001 and 2002 No. 1267

This is to certify that the Quality Management System of:

POSCO Co., Ltd.
5, Dongchon-dong, Nam-gu, Pohang-si,
Gyeongbuk,
Korea

has been assessed against the requirements of Annex 1, paragraph 4.3 of the Pressure Equipment Directive 97/23/EC, and Schedule 1, paragraph 4.3 of the Pressure Equipment Regulations 1999 and conforms to the requirements for the products shown below:

Manufacture of hot-rolled steel plate for pressure purpose and Austenitic Stainless Steel Sheet and Strip

Approval is subject to the continued maintenance of the quality system in accordance with the requirements of the above Directive and Regulations, and continuing to comply with the surveillance schedule. Products are as listed on the attached schedule.

Certificate No: 0038/PED/MUM/0910002/1

Original Approval: 21 January 2009

Current Certificate: 22 August 2012

Certificate Expiry: 21 August 2015

LRV Notified Body Number 0038


Raj Kumar on behalf of Lloyd's Register Verification

Lloyd's Register Verification Limited, 71 Fenchurch Street London EC3M 4BS UK

Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



**EC CERTIFICATE OF QUALITY SYSTEM APPROVAL
CERTIFICATE 0038/PED/MUM/0910002/1 SCHEDULE**

POSCO Co., Ltd.
5, Dongchon-dong, Nam-gu, Pohang-si,
Gyeongbuk,
Korea

PRODUCT

Austenitic Stainless Steel Sheet and Strip

SPECIFICATION	MATERIAL GRADE	Thickness	Width
EN 10088-2	1.4301, 1.4306, 1.4401 & 1.4404	Hot Rolled: 1.5- 120 mm	Hot Rolled: 700-3300mm
ASTM A240	304, 304L, 316 & 316L	Cold Rolled: 0.25-3.0mm	Cold Rolled: 700-1580mm
ITER_D_2DYSY6 v1.4	316L(N)-IG	Hot Rolled 5.0- 100 mm	700-3300 mm

Hot-rolled steel plate (Thickness 6-200mm and Width 1500-4500mm)

SPECIFICATION	MATERIAL GRADES
EN 10028-2	P265GH, P295GH, P355GH
EN 10028-3	P275NH, P275NL1, P275NL2, P355N, P355NH, P355NL1, P355NL2, P460NH, P460NL1, P460NL2
EN 10028-4	13MnNiG-3
EN 10028-5	P355M, P355M1, P355M2, P420M, P420M1, P420M2, P460M, P460M1, P460M2
ASTM A36/ ASME SA36	-
ASTM A283/ ASME SA283	C
ASTM A285/ ASME SA285	C
ASTM A387/ ASME SA387	11, 12 & 22
ASTM A516/ ASME SA516	60, 65 & 70
ASTM A537/ ASME SA537	Class 1 & Class 2
ASTM A572	50 Type1, 50 Type2 & 50 Type3
ASTM A573	70
ASME SA841	A Class1 & B Class2

Schedule Issue: 4

Date of Schedule Issue: 22 August 2012

LRV Notified Body Number 0038


Raj Kumar on behalf of Lloyd's Register Verification

Page 1 of 1

Lloyd's Register Verification Limited, 71 Fenchurch Street London EC3M 4BS UK



EC CERTIFICATE OF QUALITY SYSTEM APPROVAL

In accordance with the requirements of the Pressure Equipment Directive 97/23/EC and the Pressure Equipment Regulations 1999, UK Statutory Instrument 1999 No. 2001 and 2002 No. 1267

This is to certify that the Quality Management System of:

POSCO Co., Ltd.
#700, Gumho-dong, Gwangyang-si, Jeonnam,
Korea

has been assessed against the requirements of Annex I, paragraph 4.3 of the Pressure Equipment Directive 97/23/EC, and Schedule 1, paragraph 4.3 of the Pressure Equipment Regulations 1999 and conforms to the requirements for the products shown below:

Manufacture of hot-rolled steel plate for pressure purpose

Approval is subject to the continued maintenance of the quality system in accordance with the requirements of the above Directive and Regulations, and continuing to comply with the surveillance schedule. Products are as listed on the attached schedule.

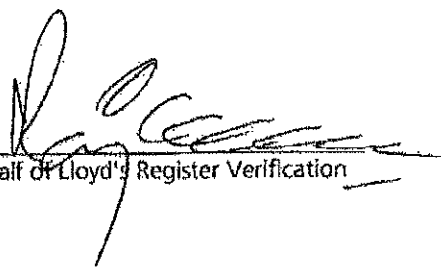
Certificate No: 0038/PED/MUM/0910002/2

Original Approval: 22 August 2012

Current Certificate: 22 August 2012

Certificate Expiry: 21 August 2015

LRV Notified Body Number 0038


Raj Kumar on behalf of Lloyd's Register Verification

Lloyd's Register Verification Limited, 71 Fenchurch Street London EC3M 4BS UK

Lloyd's Register, its officers and subsidiaries, and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



**EC CERTIFICATE OF QUALITY SYSTEM APPROVAL
CERTIFICATE 0038/PED/MUM/0910002/2 SCHEDULE**

POSCO Co., Ltd.
#700, Gumho-dong, Gwangyang-si, Jeonnam,
Korea

PRODUCT

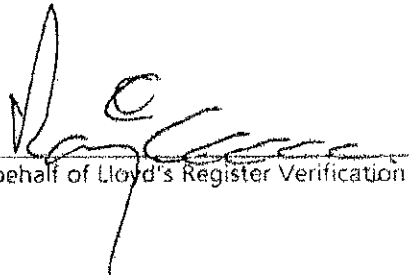
Hot-rolled steel plate (Thickness 6-200mm and Width 1500-5300mm)

SPECIFICATION	MATERIAL GRADES
EN 10028-2	P265GH, P295GH, P355GH
EN 10028-3	P275NH, P275NL1, P275NL2, P355N, P355NH, P355NL1, P355NL2, P460NH, P460NL1, P460NL2
EN 10028-4	13MnNi6-3
EN 10028-5	P355M, P355M1, P355M2, P420M, P420M1, P420M2, P460M, P460M1, P460M2
ASTM A36/ ASME SA36	-
ASTM A283/ ASME SA283	C
ASTM A285/ ASME SA285	C
ASTM A387/ ASME SA387	11, 12 & 22
ASTM A516/ ASME SA516	60, 65 & 70
ASTM A537/ ASME SA537	Class 1 & Class 2
ASTM A572	50 Type1, 50 Type2 & 50 Type3
ASTM A573	70
ASME SA841	A Class1 & B Class2

Schedule Issue: 1

Date of Schedule Issue: 22 August 2012

LRV Notified Body Number 0038


Raj Kumar on behalf of Lloyd's Register Verification

JSW STEEL (USA) INC.

5200 East McKinney Road,
BAYTOWN, TX 77523

METALLURGICAL TEST REPORT

MBT-04

Page 1 of 1
TC No.: BR217750-9315-03
Date: 7/15/2014

Sold To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77068 PAINT PRN 24" 1000		Ship To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77068	Order No: JSW2854-06 P.O.: 21295	Plates Manufactured in the USA PLATE NORMALIZED 1650 DEG F @ 83 MINS	Inspection: Insp. _____ Supplying Mode: DIRECT TRUCK DYN EN 10204 2004 3.1	Bulletin Num. 217750
--	--	---	---	--	--	-----------------------------

This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications. Fine Grain, Si-Al Fully Killed Steel. We certify that delivery of this product with the requirement of the specification and purchase order received from customer.

Specifications: HOT ROLLED PLATE CUT EDGE ASME SA516-11A GR70 PLATE NORMALIZED WITH LCYN PRESSURE VESSEL QUALITY
Marking Instructions: Each plate stenciled with, Mfr name, PO, Heat No., length, width, thickness, weight, grade, Plate no.

LCYN PER SA30 LATERAL EXPANSIONS REQUIRED ON MTR

Material Dimensions (in)				Qty	Wgt. (Lbs)	Heat No.	Gauge Tested	Test/Plate Identify	Test Direc.	Test Cond	Yield Point (KSI)	Tensile Str. (KSI)	YS/UTS Ratio	Elongation in 8" in 2"	Yield Strength Determined at	Platts
Item No.	Gauge	Width	Length													
06	2.7500	120.00	240.00	1	22,461	S19315	2.7500	02A-A	TRAN	PN	47	73	0.84	30%	0.2%	00919748A

LATERAL EXPANSION NO BREAK
TEST 1 TEST 2 TEST 3 AVG.

85	77	84	82
----	----	----	----

LATERAL EXPANSION AND SHEAR PERCENTAGE ARE FOR REFERENCE ONLY

Charpy Impact Test (LCYN FULL Energy in FULB Temp °F)

Sample	Temp	Test1	Test2	Test3	Avg	Test1	Test2	Test3	Avg
1	-50	22	70	78	77	85%	80%	85%	83%

Made By: Jason Murray

QUALITY CONTROL
ATTESTED
SEP 25 2014
BY: JASON MURRAY

Charpy
Certification
Report



Tejas Testing & Inspection, Inc.
4601 South Pinemont, Suite 136
Houston, TX 77041
Phone: (713) 939-0440 • Fax: (713) 939-0430

Report: T101916 -2

Customer: Schill Steel Services

PO Number 21641

Material: A516-70N

HT No. S19315

No. Pieces: 1

Customer Info.: 2 3/4 TEST PIECE

Specification: LCVN @ -50°F PER ASTM E23

Results

Unless otherwise stated, specimens are full size, i. e. 10 mm x 10 mm

Number	1	2	3	4
Temperature:	<u>-50°F</u>			
Location:	<u>LCVN</u>			
FT/Lbs	<u>39</u>	<u>34</u>	<u>44</u>	
% Shear	<u>20</u>	<u>20</u>	<u>20</u>	
MLE	<u>.026</u>	<u>.024</u>	<u>.029</u>	

Comments:

Submitted by:

Date:

Randall Tippit

9/2/2014

TTI Representative

Randall Tippit

SECURITY CONTROL RECORD
APPROVED

DEC 21 2014

ST. MARLATORRES

ANALYSITODISTUS ANALYSIS CERTIFICATE
ANALYSEBESCHEINIGUNG COMPOSITO CHIMIQUE CERTIFICAT
CERTIFIKAT ANALIZA

19806 -001
03.07.2014

Polymerizing Dialo-Darkum Oils

04.07.2014

03.07.2014 Plüschstraße 100, 42699 Solingen 04.67.2014 VJS									
СЕРИОМКАТ АНАЛИЗА (Vppf)									
Analyse % Chemical composition % Chemisch-Zusammensetzung % Composition Chimique % Analyse system %									
Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	C	SI	MX	P	S	AL
Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	NE	V	VI	CR	NI	MO
Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	Coat No No of coat No of coat No of coat	Ratio Ratio Ratio Ratio	B	ZR				
12463	001 -42	300	35 1.15	012	003	036	001	012	005
08532	001 -40	159	31 1.11	012	002	032	001	013	003
12465	002 -42	200	35 1.15	012	003	036	001	012	005
10942	003 -40	189	32 1.12	008	001	037	000	008	004
12471	003 -40	191	34 1.15	010	003	052	000	012	005
11682	004 -41	204	36 1.11	010	004	047	016	007	004
12048	005 -42	206	35 1.16	007	003	040	017	005	004
11592	006 -41	204	36 1.11	010	004	047	016	007	004
11938	007 -44	234	38 1.15	010	003	041	015	008	005
12012	008 -44	224	38 1.17	013	002	037	016	008	005
12012	009 -44	224	38 1.17	013	002	037	016	008	005
12012	010 -44	224	38 1.17	013	002	037	016	008	005
12012	011 -44	224	38 1.17	013	002	037	016	008	005
10751	012 -42	214	37 1.15	009	002	034	015	010	004
11722	012 -42	211	38 1.16	013	001	038	015	015	005
12045	012 -44	220	36 1.15	011	002	042	017	016	004
12048	012 -42	206	35 1.16	007	003	040	017	009	004
11344	012 -42	220	36 1.12	011	002	031	015	006	004
11722	012 -42	211	38 1.16	013	001	038	015	015	005
12029	014 -43	226	38 1.12	008	004	041	015	011	005
12027	015 -43	223	39 1.16	010	003	042	015	007	006
11939	015 -42	209	38 1.18	011	001	041	014	007	005
11722	017 -42	211	38 1.16	013	001	038	015	015	005
12029	017 -42	226	38 1.12	008	004	041	015	011	005
12027	018 -43	223	39 1.17	011	001	038	015	015	005
11939	018 -43	218	37 1.17	011	001	038	015	015	005
12029	019 -42	213	38 1.15	011	002	048	017	013	005
11727	019 -42	213	38 1.15	011	002	048	017	013	005
12523	019 -43	218	37 1.17	011	001	038	015	015	005
11727	020 -42	220	37 1.13	010	001	043	017	009	005
11986	020 -42	220	37 1.13	010	001	043	017	009	005
12029	021 -43	223	38 1.16	010	003	042	016	007	004
12027	021 -43	223	38 1.16	010	003	042	016	007	004

$$CEQ = C + MN/5 + (CR + MO + V)/5 + (NI + CV)/1.5$$

Reid's Steel Works

ગાંધીજીના જન્મદિવસને
 ઉજવવાના રીતિ રીવાજો
 અનુસાર જાહેર સ્થાનો પર
 ગાંધીજીના ચિત્રોની સ્થાપતિ
 કરવામાં આવે છે.

Steel manufactured and supplied by Rustenburg is free from radiation. It is produced in the Rustenburg steelworks, a modern plant with a production capacity of 1.5 million tonnes per annum. The Rustenburg plant is the only one in the world to produce steel in this way.

MIYUNA VALKAMA

[illegible]

Shulon Citini Company Name: **BLANKI METALS OF**
 Central City Registered Office: **HELISING**
 Postal Address: **P.O. Box 53**
POWELL ROAD, FNU AND

Telekopia Tiesax 020 592 2736
+356 20 592 2735

Y-mae'n ddiweddwr: 2020/04/27

**Charpy
Certification
Report**



Tejas Testing & Inspection, Inc.
4601 South Plinmont, Suite 136
Houston, TX 77041
Phone: (713) 939-0440 • Fax: (713) 939-0430

Report: T102344 -3

Customer: Schill Steel Services

PO Number 21684

Material: A516-70N

HT No. 11722

No. Places: 1

Customer Info.: 2 1/4

Specification: LCVN @ -50°F PER ASTM E23

Results

Unless otherwise stated, specimens are full size, i. e. 10 mm x 10 mm

Number	1	2	3	4
Temperature:	-50°F			
Location:	LCVN			
Ft/Lbs	44 49 35			
% Shear	20 20 20			
MLE	.019 .022 .016			

Comments:

Submitted by:

Date:

William Crawford

9/16/2014

TTI Representative

William A Crawford

14610 Sheraton
Houston, TX 77039

[illegible]

PUUKKI

ANALYYSITODISTUS ANALYSIS CERTIFICATE ANALYSEBESCHEINIGUNG COMPOSITO CHIMIQUE CERTIFICAT СЕРТИФИКАТ АНАЛИЗА

A 19866 -001
03.07.2014
04.07.2014
VJS

Sample No. Näytteen Nro. N° de échant. № образца	Protein Proteiini Protéine Белок	Calc. Con. Con. Con.	Analytical % Chemical composition % / % Composition chimique % / % Zusammensetzung % / %																Average range % / % Moyenne range % / % Средний диапазон % / %			
C	SI	KN	P	S	AL	MB	V	WI	CU	CR	NI	MO	P	SE								
12459	001	42	200	35	1.13	0.12	0.03	0.03	0.01	0.12	0.05	0.20	0.05	0.04	0.05	0.007	0.00					
12460	001	40	199	31	1.11	0.12	0.02	0.02	0.01	0.13	0.03	0.20	0.05	0.04	0.05	0.007	0.00					
12461	002	42	200	35	1.13	0.12	0.03	0.03	0.01	0.12	0.05	0.20	0.05	0.04	0.05	0.007	0.00					
12462	003	40	199	32	1.12	0.08	0.01	0.03	0.00	0.08	0.04	0.18	0.06	0.05	0.13	0.001	0.01					
12471	003	40	191	34	1.15	0.10	0.03	0.02	0.00	0.12	0.05	0.28	0.05	0.04	0.07	0.005	0.01					
11682	004	41	204	36	1.12	0.10	0.04	0.04	0.01	0.07	0.04	0.14	0.06	0.04	0.05	0.004	0.01					
12048	005	42	206	35	1.15	0.07	0.03	0.04	0.01	0.09	0.04	0.14	0.06	0.04	0.05	0.004	0.01					
11682	006	41	204	36	1.11	0.10	0.04	0.04	0.01	0.07	0.04	0.14	0.06	0.04	0.05	0.004	0.01					
11938	007	44	224	38	1.15	0.10	0.03	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12012	008	44	224	38	1.17	0.13	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12012	009	44	224	38	1.17	0.13	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12012	010	44	224	38	1.17	0.13	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12012	011	44	224	38	1.17	0.13	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11722	012	42	214	37	1.15	0.09	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12045	012	44	220	36	1.15	0.13	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12045	012	44	220	36	1.15	0.13	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12048	012	42	206	35	1.15	0.07	0.03	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11344	013	42	220	36	1.12	0.11	0.02	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11722	013	42	211	38	1.15	0.13	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12029	014	43	228	38	1.12	0.08	0.04	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12027	015	43	223	38	1.15	0.10	0.03	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11933	016	42	209	38	1.15	0.11	0.01	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11722	017	42	211	38	1.15	0.13	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12029	017	43	226	38	1.12	0.08	0.04	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12523	018	43	218	37	1.17	0.11	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11727	019	42	213	38	1.13	0.11	0.02	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12523	019	42	218	37	1.17	0.11	0.01	0.03	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
11986	020	42	220	37	1.13	0.10	0.01	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12029	020	43	226	38	1.12	0.08	0.04	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					
12027	021	43	223	38	1.15	0.10	0.03	0.04	0.01	0.08	0.05	0.16	0.05	0.04	0.05	0.004	0.01					

CEO=C-HSI/5+(CR-ABD-V)/5+(EXT-CR)/15

Raah Steel Works

Tested by: *Minna Valkama* / *Minna Valkama* / *Minna Valkama* / *Minna Valkama*

Steel manufactured and supplied by Raah Steel Works Ltd. has been certified.
The certificate is valid only for the material and the quantity specified in the order.

MINNA VALKAMA
Välähtö / *Minna Valkama* / *Minna Valkama* / *Minna Valkama*
Yhteystiedot / *Minna Valkama* / *Minna Valkama* / *Minna Valkama*
Yhteystiedot / *Minna Valkama* / *Minna Valkama* / *Minna Valkama*

Yhteystiedot / *Minna Valkama* / *Minna Valkama* / *Minna Valkama*

Charpy Certification Report



Tejas Testing & Inspection, Inc.
4601 South Pinemont, Suite 136
Houston, TX 77041
Phone: (713) 939-0440 • Fax: (713) 939-0430

Report: T102344 -2

Customer: Schill Steel Services

PO Number 21684

Material: A516-70N

HT No. 12048

No. Pieces: 1

Customer Info.: 2 1/4

Specification: LCVN @ -50°F PER ASTM E23

Results

Unless otherwise stated, specimens are full size, i. e. 10 mm x 10 mm

Number	1	2	3	4
Temperature:	<u>-50°F</u>			
Location:	<u>LCVN</u>			
Ft/Lbs	<u>51</u>	<u>54</u>	<u>44</u>	
% Shear	<u>20</u>	<u>20</u>	<u>20</u>	
MLE	<u>.024</u>	<u>.026</u>	<u>.021</u>	

Comments:

Submitted by:

William Crawford

TTI Representative

Date:

9/16/2014

William A Crawford

Phone: (281) 449-5228
Fax: (281) 449-6699

65072 XL 1035087
Botany 01941

UT CERTIFIED TEST REPORT

[illegible]

JSW STEEL (USA) INC.

5200 East McKinney Road,
BAYTOWN, TX 77523
METALLURGICAL TEST REPORT

MET-04

Page 1 of 1
TC No.: BR217816-9313-02
Date: 7/7/2014

Sold To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77008 Order No.: JSW2854-09 P.O.: 21295 Plates Manufactured in the USA PLATE NORMALIZED 1550 DEG F @ 85 MINS		Ship To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77008 Order No.: JSW2854-09 P.O.: 21295 Plates Manufactured in the USA PLATE NORMALIZED 1550 DEG F @ 85 MINS	This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications Fine Grain, Si-Al Rully Killed Steel. We certify that delivery of this product with the requirement of the specification and purchase order received from customer.	Bulletin Num. 217816
--	--	--	---	-----------------------------

Specifications: HOT ROLLED PLATE CUT EDGE ASME SA516-11A GR70 PLATE NORMALIZED WITH LCVN PRESSURE VESSEL QUALITY

Marking Instructions: Each plate stenciled with, Mfr name, PO, Heat No., length, width, thickness, weight, grade, Plate no.

Item No.	Material Dimensions (in)				Qty	Wgt. (Lbs)	Heat No.	Gauge Tested	Test/ Plate Identity	Test Direc.	Test Cond	Yield Point (KSI)	Tensile Str. (KSI)	YS/UTS Ratio	Elongation in 8" in 2"	Yield Strength Determined at	Plates
	Gauge	Width	Length														
09	2.7500	121.00	234.00	1	22.082	S19313	2.7500	02A-A	TRAN	PN	43	73	0.59	34%	0.2%	00919752A	

Charpy Impact Test (LCVN) FULL Energy in FvLb Temp °F					
Sample	Temp	Test1	Test2	Test3	Avg
1	-30	50	57	50	52

LATERAL EXPANSION: FOR REFERENCE ONLY					
TEST1	TEST2	TEST3	AVG		
68	69	58	68		

Test	C	Mn	P	S	Si	Cr	Ni	Co	Al	N	V	B	Ti	Nb	Ca	CE
LADLE	0.19	1.12	0.013	0.002	0.27	0.024	0.015	0.003	0.000	0.0030	0.002	0.0000	0.002	0.001	0.0015	0.38

Made By: *Sharon Johnson*

QUALITY CONTROL RECORD APPROVED OCT 06 2014 BY: MARIA DEES

**Charpy
Certification
Report**



Tejas Testing & Inspection, Inc.
4601 South Pinemont, Suite 136
Houston, TX 77041
Phone: (713) 939-0440 • Fax: (713) 939-0430

Report: T101916 -3

Customer: Schill Steel Services

PO Number 21641

Material: A516-70N

HT No. S19313

No. Pieces: 1

Customer Info.: 2 3/4 TEST PIECE

Specification: LCVN @ -50°F PER ASTM E23

Results

Unless otherwise stated, specimens are full size, i. e. 10 mm x 10 mm

Number	1	2	3	4
Temperature:	<u>-50°F</u>			
Location:	<u>LCVN</u>			
Fl/Lbs	<u>46</u>	<u>39</u>	<u>49</u>	
% Shear	<u>30</u>	<u>30</u>	<u>30</u>	
MLE	<u>.029</u>	<u>.027</u>	<u>.029</u>	

Comments: _____

Submitted by:

Date:

Randall Tippit

9/2/2014

TTI Representative

Randall Tippit

Phone: (281) 449-5228
Fax: (281) 449-6699

Houston, TX 77039

UT CERTIFIED TEST REPORT

[illegible]

JSW STEEL (USA) INC.

5200 East McKinney Road,
BAYTOWN, TX 77523

METALLURGICAL TEST REPORT

Page 1 of 1
TC No.: BR217750-9315-03
Date: 7/4/2014

NET-04

Sold To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77008 PAID FOR: 24-000		Ship To: SCHILL STEEL 3001 WEST 11TH ST. HOUSTON, TX 77008		This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications. Fine Grain, Si-AL Fully Killed Steel. We certify that delivery of this product with the requirement of the specification and purchase order received from customer.		Bulletin Num. 217750	
Plates Manufactured in the USA		Order No: JSW2354-06					
PLATE NORMALIZED 1650 DEG F @ 85 MINS		Insp.		Shipping Mode: DIRECT TRUCK DIN EN 10204 2004 3.1			
Specifications: HOT ROLLED PLATE CUT EDGE ASME SA516-11A GR70 PLATE NORMALIZED WITH LCYN PRESSURE VESSEL QUALITY Marking Instructions: Each plate stenciled with, Mfr name, PO, Heat No., length, width, thickness, weight, grade, Plate no.							

LCYN PER SA20 LATERAL EXPANSIONS REQUIRED ON MTR

Material Dimensions (in)				Heat No.	Gauge Tested	Test/Plate Identify	Test Direc.	Test Cond	Yield Point (KSI)	Tensile Str. (KSI)	YS/UTS Ratio	Elongation in 8" in 2"	Yield Strength Determined at	Plates
Item No.	Grade	Width	Length											
06	2.7500	120.00	240.00	1	22.461	02A-A	TRAN	PN	47	73	0.54	30%	0.2%	00919748A

LATERAL EXPANSION NO BREAK
TEST 1 TEST 2 TEST 3 AVG.
85 77 84 82

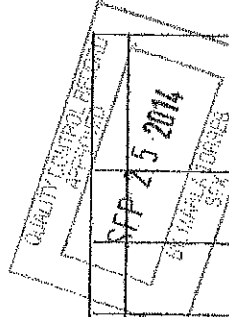
Charpy Impact Test (LCYN) FULL Energy in FULB Temp °F

Sample	Temp	Test1	Test2	Test3	Avg	Test1	Test2	Test3	Avg
1	-50	82	70	78	77	85%	80%	85%	83%

LATERAL EXPANSION AND SHEAR PERCENTAGE ARE FOR REFERENCE ONLY

Test	C	Mn	P	S	Si	Cu	NI	Cr	Mo	Sn	Al	N	V	B	Ti	Nb	Ca	CE
LADLE	0.21	1.08	0.007	0.003	0.27	0.018	0.020	0.012	0.003	0.000	0.027	0.0047	0.002	0.0000	0.002	0.001	0.0014	0.40

Made By: *Jason Murray*



Charpy Certification Report



Tejas Testing & Inspection, Inc.
4601 South Pinemont, Suite 136
Houston, TX 77041
Phone: (713) 939-0440 • Fax: (713) 939-0430

Report: T101916 -2

Customer: Schill Steel Services

PO Number 21641

Material: A516-70N

HT No. S19315

No. Pieces: 1

Customer Info.: 2 3/4 TEST PIECE

Specification: LCVN @ -50°F PER ASTM E23

Results

Unless otherwise stated, specimens are full size, i. e. 10 mm x 10 mm

Number	1	2	3	4
Temperature:	<u>-50°F</u>			
Location:	<u>LCVN</u>			
Ft/Lbs	<u>39</u>	<u>34</u>	<u>44</u>	
% Shear	<u>20</u>	<u>20</u>	<u>20</u>	
MLE	<u>.026</u>	<u>.024</u>	<u>.029</u>	

Comments: _____

Submitted by:

Date:

Randall Tippit

9/2/2014

TTI Representative

Randall Tippit

1610 Sheraton
Houston, TX 77059

[illegible]

QUALITY CONTROL REQUIRED
APPROVED
SEP 20 2014
ON-DEMAND TOWERS
55X

camp

Luiz Claudio de Oliveira Meyer
SUPERINTENDÊNCIA DE GARANTIA DA QUALIDADE
QUALITY ASSURANCE MANAGEMENT

LC FLG

USINAS SIDERURGICAS DE MINAS GERAIS S.A.				INSPECTION CERTIFICATE/PACKING LIST				Customer-Client: NORTH SHORE SUPPLY COMPANY			
USIMINAS SOBRADO DE MINAS GERAIS - CUBATÃO/PR R. PROF. JOSÉ VIEIRA DE MENDONÇA, 3011 BARRIO ENGENHO NOBREIRA - CP 406 - CEP: 3510-260 CNPJ: 00.947.740/0001-00 INSCRIÇÃO ESTADUAL: 028.012188416				CERTIFICADO DE INSPEÇÃO STEEL PLATE CHAPA GROSSA DO LCG				Lot: 939863 Date of Issue: 27/06/2014 Certificate N°: 224008			
Tolerances - Tolerâncias Thickness-Espessura Width-Largura Length-Comprimento				-0,25/-2,75 mm -0,00/+15,00mm -0,00/+15,00mm				Order N°: 00308529 Item: 03			
Usiminas certifies that the products herein described have been produced in Brazil by using the basic oxygen process (BOP), tested and analyzed according to the applicable technical specifications. Usiminas makes available, by using the following website: http://www.usiminas.com.br/dados/seguranca/seguranca-usiminas.pdf , a tool to be used by the customer to verify (check) product certificate authenticity. Usiminas duly recommends the use of such tool for customer's safety.				Usiminas certifica que os produtos aqui descritos foram produzidos no Brasil pelo processo de oxigênio básico (OB), ensaiados e analisados de acordo com as especificações técnicas aplicáveis. Usiminas disponibiliza, através do seguinte endereço eletrônico: http://www.usiminas.com.br/dados/seguranca/seguranca-usiminas.pdf , uma ferramenta a ser utilizada pelo cliente para verificar a autenticidade do certificado. Usiminas recomenda o uso desta ferramenta para a segurança do cliente.				Folha - Sheet = 1/1			
Quality - Qualidade				Nonmetal Dimensions - Dimensões Nominais 2,2500x97x410 inch				Original			
ASTM A516-70-70MT-LTV, ASME-SA516-70-70MT-LTV, ASME-SA516-70-70MT-LTV.				Packages - Pacotes Net Weight - Peso Líquido Gross Weight - Peso Bruto Pieces per Volume - Peças por Volume				Packages - Pacotes Net Weight - Peso Líquido Gross Weight - Peso Bruto Pieces per Volume - Peças por Volume			
Total Gross Weight - Peso Bruto Total = 103,608 MT - Total Net Weight - Peso Líquido Total = 103,608 MT - Packages - Pacotes = 2				Charpy Test - Ensaio de Charpy Sample - Amostra Pos - Posição Dir - Direção TS - Tensão SE - Elongação				Charpy Test - Ensaio de Charpy Sample - Amostra Pos - Posição Dir - Direção TS - Tensão SE - Elongação			
Tensile Test - Ensaio de Tração Sample - Amostra Pos - Posição Dir - Direção TS - Tensão SE - Elongação				Tensile Test - Ensaio de Tração Sample - Amostra Pos - Posição Dir - Direção TS - Tensão SE - Elongação				Tensile Test - Ensaio de Tração Sample - Amostra Pos - Posição Dir - Direção TS - Tensão SE - Elongação			
Chemical Composition - Composição Química (% Peso) Heat Analysis - Análise de Metal C - Carbono Mn - Manganês P - Fósforo S - Enxofre				Chemical Composition - Composição Química (% Peso) Heat Analysis - Análise de Metal C - Carbono Mn - Manganês P - Fósforo S - Enxofre				Chemical Composition - Composição Química (% Peso) Heat Analysis - Análise de Metal C - Carbono Mn - Manganês P - Fósforo S - Enxofre			
Carbon Equivalent Formula - Fórmula de Carbono Equivalente CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15				Carbon Equivalent Formula - Fórmula de Carbono Equivalente CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15				Carbon Equivalent Formula - Fórmula de Carbono Equivalente CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15			
Supply Condition - Condição de Fornecimento Normalized - Normalizado				Supply Condition - Condição de Fornecimento Normalized - Normalizado				Supply Condition - Condição de Fornecimento Normalized - Normalizado			
Abreviations - Abreviações Pos = Test Location - Posição de Amostragem TS = Yield Strength - RE = Limite de Escoamento SE = Elongation - Alongamento C = Carbono Mn = Manganês P = Fósforo S = Enxofre				Abreviations - Abreviações Pos = Test Location - Posição de Amostragem TS = Yield Strength - RE = Limite de Escoamento SE = Elongation - Alongamento C = Carbono Mn = Manganês P = Fósforo S = Enxofre				Abreviations - Abreviações Pos = Test Location - Posição de Amostragem TS = Yield Strength - RE = Limite de Escoamento SE = Elongation - Alongamento C = Carbono Mn = Manganês P = Fósforo S = Enxofre			
Remarks - Observações NORTH SHORE/CERTIF ACCORD TO EN 10204 3.1 PRODUCT FULLY KILLED AND FIN GRAIN PRACTICE, MERCURY FREE. NO WELD REPAIR. MSDS - Material Safety Data Sheet N° 03 available at Usiminas Extranet FDS - Ficha de Dados de Segurança do Produto número 03, disponível na Extranet da Usiminas THIS CERTIFICATE CANCELS AND REPLACES THE PRIOR ONE ISSUED FOR THIS MATERIAL.				Remarks - Observações NORTH SHORE/CERTIF ACCORD TO EN 10204 3.1 PRODUCT FULLY KILLED AND FIN GRAIN PRACTICE, MERCURY FREE. NO WELD REPAIR. MSDS - Material Safety Data Sheet N° 03 available at Usiminas Extranet FDS - Ficha de Dados de Segurança do Produto número 03, disponível na Extranet da Usiminas THIS CERTIFICATE CANCELS AND REPLACES THE PRIOR ONE ISSUED FOR THIS MATERIAL.				Remarks - Observações NORTH SHORE/CERTIF ACCORD TO EN 10204 3.1 PRODUCT FULLY KILLED AND FIN GRAIN PRACTICE, MERCURY FREE. NO WELD REPAIR. MSDS - Material Safety Data Sheet N° 03 available at Usiminas Extranet FDS - Ficha de Dados de Segurança do Produto número 03, disponível na Extranet da Usiminas THIS CERTIFICATE CANCELS AND REPLACES THE PRIOR ONE ISSUED FOR THIS MATERIAL.			

QUALITY CONTROL RECORD
APPROVED
OCT 07 2014
BY: MARIA TORRES
SPY

LUIS Claudio de Oliveira Meyer
SUPERINTENDENTE DE GARANTIA DA QUALIDADE
QUALITY ASSURANCE MANAGER

TEX-FAB, INC

BUS (281)373-0855 FAX (281)373-5317



PRESSURE VESSELS

P.O. BOX 40508 HOUSTON, TEXAS 77240-0508

DATA PACKAGE FOR: SPX FLOW TECHNOLOGY SYSTEMS INC.

TEX-FAB, INC. S/O NO. 14-744 ITEM 2

P.O. NO. 4501039397

ITEM NO. 7-413417

DESCRIPTION: (1) FORMED AND WELDED CHANNELS.

PLEASE FIND ATTACHED ORIGINALS AND/OR COPIES OF THE FOLLOWING DATA AS REQUIRED:

ASME DATA REPORT: _____

MTR'S FOR MATERIAL: _____ X

RT REPORT: _____ X

UT REPORT: _____ X

MT REPORT: _____

PT REPORT: _____

HARDNESS REPORT: _____

HEAT TREAT CHART: _____

HYDRO CHART/REPORT: _____

NAME PLATE: _____

PRODUCTION WELD TEST: _____ X

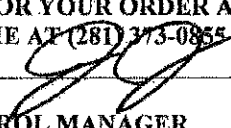
REMARKS:

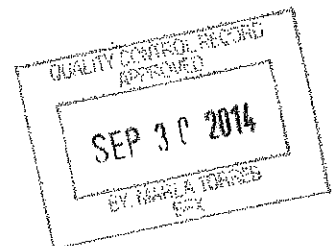
CHANNEL .75" THK x 6.5" WIDE x 14.5" TALL x 4.19" LONG.

SA-537 CL 1 MATERIAL. HEAT CODE: HC0064 

CHANNEL CUPOLA TUBE (CHNL), 24" 600# M303A*

THANK YOUR FOR YOUR ORDER AND IF THERE ARE ANY QUESTION CONCERNING THIS DATA
PLEASE CALL ME AT (281) 373-0855 EXT. 14. * DESIGN AND CALCULATIONS NOT BY TEX-FAB, INC.


JAY JOHNSON
QUALITY CONTROL MANAGER



09/04/2014 From: AMERICAN ALLOY STEEL, INC. To: TEX-FAB, INC.
P.O.#: VB14-744 S.O.#: 493782 AA PL#: 8055620
Item: 1 (1 PC) 3/4" X 30" X 64" (MARK DOR)
TAG: PO# VB14-744

ArcelorMittal Burns Harbor Plate

SHIPMENT NO. 802-31891		DATE SHIPPED 06-27-13	CAR OR VEHICLE NO. CN-EOLA-BNSF	BNSF 546108	PAGE 10
AMERICAN ALLOY STEEL INC PO BOX 40469 HOUSTON TX 77240-0469			AMERICAN ALLOY STEEL INC BNSF TR# 7226 MILE 66.4 LN SEG 492 6230 N HOUSTON ROSSLYN RD HOUSTON TX		

SERIAL NUMBER	PAT NO.	HEAT NUMBER	NO. PCS.	SIZE AND QUANTITY				YIELD POINT	TENSILE STRENGTH	ELONG.	REEL
				THICKNESS	WIDTH OR DIA.	LENGTH	WEIGHT				

QUALITY STEEL MELTED & MANUFACTURED IN THE U. S. A.
PLATES - API -2H GR 50 INTEGRA 2006 EDITION
MOD C.15 MAX S1,S3,S4,S5 FULLY
KILLED-FINE GRAIN CE-.23X PER PCM &
.43X PER IIR FORMULA, ASTM A633-01
GR C, ABS GRD DH/EH36 REV 2006,
ASME SA537 PQ 2004 EDITION MOD CB.04X CL 1, MIL-S-22698C GR DH36
CH-V A2085 PLT T 30/25 FT/LBS AT -50F, THRU THK PER API-2H S4, UT
A578 LEVEL A 100%, PROD ANAL EA HT-PLT NORM & COOLED IN STILL AIR-TEST CERT
ARE PREPARED IN ACCORD WITH PROCEDURES OUTLINED IN EN 10204:2004-TYPE 3.1
NO WELD REPAIR WAS PERFORMED ON BELOW PLATE(S)
CO# 94227 GR 355-1672H
PLATES HEAT TREATED - TEST SPECIMENS ATTACHED & YIELD STRENGTH @ .5% EUL
MERCURY IN ANY FORM HAS NOT BEEN USED
IN THE PRODUCTION OF THIS ORDER
PLATES ULTRASONICALLY TESTED PER ATTACHMENT
OUTSIDE INSPECTION BY AMERICAN BUREAU OF SHIPPING

P933902 812A42650 1 .75 120 360 9189 52000 75800 2 28 64
N 1650 DEG F - 38 MIN 62
(M55)MFST REF#:1

Q-QUENCH TEMPERATURE T-TEMPER TEMPERATURE N-NORMALIZE TEMPERATURE
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE BY THE
ARCELORMITTAL BH PLNT TO THE APPLICABLE SPECIFICATION BY AN APPROVED PROCESS
AND HAS BEEN TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN
BUREAU OF SHIPPING RULES FOR THE INSPECTION AND TESTING OF MATERIALS TO THE
SATISFACTION OF THE SURVEYORS.

SERIAL NUMBER	PAT NO.	HEAT NUMBER	HARD BHN	BEND	THICKNESS INCHES	TYPE	SIZE	DIN	TEST TEMP °F	ENERGY FT LBS			CHARPY IMPACT			LAT. EXP	MILS
										1	2	3	1	2	3		
P933902		812A42650			.750	V	FULL T	-50		170	106	127	1	2	3		



HEAT NUMBER	CHEMICAL ANALYSIS																	MAGN. GRAIN SIZE
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Ti	Al	B	Co	N	Sn		
812A42650	.13	1.40	.014	.006	.336	.023	.01	.08	.057	.002	.002	.039	.0002	.032	.006	.003		
	CE	PCM																
	.39	.22																
Certified a true copy of the																		

Certified a true copy of the
original, retained in our file.
AMERICAN ALLOY STEEL

Reviewed By: *[Signature]* 8/6/13

I certify that the above results are a true and correct copy of actual results contained in records maintained by ArcelorMittal Burns Harbor and are in full compliance with the requirements of the specification cited above. This test report cannot be altered and must be transmitted intact with any subsequent third party test reports, if required.

SHIPMENT TIP
SUPV. QUALITY ASSURANCE
D. W. ELWOOD PER WNK
MTR. CHECKED
DATE: 9.5.14
HT: *[Signature]*

14-744
MTR'S SUPPLIED BY TEX-FAB, INC.
CUST. SPX
P.O. # 450103937
ITEM # 2 (2PCS) 7-413417
THIS CARBON SECTION WAS FORMED IN
ACCORDANCE WITH ASME CODE SECTION
VIII DIV. 1, UCS 79 (d) AND UG-80.

0095508

Accepted by: _____ Date: 9/25/90 _____
 Representative of: Tex Fab, Inc. _____
 Level II Radiographer: JASON BEWTER _____
 Level II Interpreter: SA _____

09/04/2014 From: AMERICAN ALLOY STEEL, INC.

To: TEX-FAB, INC.

P.O.#: VB14-744

S.O.#: 493782

AA PL#: 8055620

Item: 1 (1 PC) 3/4" X 30" X 64" (MARK DOR)

TAG: PO# VB14-744


ArcelorMittal

ArcelorMittal
Burns Harbor Flat Carbon
250 West US Highway 12
Burns Harbor, Indiana 46304-1273
June 28, 2013

American Alloy Steel, Inc.
PO BOX 40469
Houston, TX 77240-0469

GENTLEMEN:

The following plates have been 100 percent ultrasonically inspected and found acceptable to UT A578 Level A.

Equipment: Epoch 081140006
Surface: As Rolled
Test Method: Contact
Couplant: Water
Transducer: 2.25 MHz., 1" Diameter
Manifest Number: 802-31891

Customer Order #	Item No.	Serial Number	Heat Number	Plate Size	Recordable Indications	Technician
94227	01	P 933946 -01	813B61180	0.7500 x 096.00 x 360.00	None	M.A. Baylor
94227	01	P 933947 -01	813B61180	0.7500 x 096.00 x 360.00	None	M.A. Baylor
94227	01	P 934171 -01	821A07920	0.7500 x 096.00 x 359.00	None	R.A. Cross
94227	01	P 933902 -02	812A42650	0.7500 x 120.00 x 380.00	None	R.A. Cross
94227	01	P 933907 -01	813B61180	0.7500 x 120.00 x 360.00	None	R.A. Cross
93588	01	P 934209 -01	812A41720	1.5000 x 096.00 x 360.00	None	M.A. Baylor

Very truly yours,
ArcelorMittal



Daniel W. Elwood
Quality Manager
Burns Harbor Flat Carbon

14-744 Item 2



GOOLSBY TESTING, INC.

2620 WILSON ROAD - P.O. BOX 1416
HUMBLE, TEXAS 77347-1416
(281) 540-1255 FAX (281) 540-8125



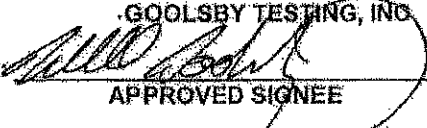
CLIENT: TEX FAB	DATE RECEIVED: 9/18/14
PO BOX 40508	DATE TESTED: 9/22/14
HOUSTON, TX 77240	REPORT DATE: 9/22/14
PURCHASE ORDER: 14-744IT2	LABORATORY TEST NO: 14-09-92409
GT#: 1561 SHOP ORDER#: 17-744IT2	TECHNICIAN: CHARLES WILLIAMS
HEAT #: HC0064 SLAB #: N/A	PROCEDURE: #15 #16
HUMIDITY: 76.2	LIGHTING: 205FC
ENVIRONMENTAL CONDITIONS: BP: 30.05	TEMP: 69.8° F
MATERIAL THICKNESS: 3/4"	
MATERIAL/DESCRIPTION: SA537-1(N) WELDED PLATE	
SPECIFICATIONS: ASME SECT VIII DIV 1 PER UG 84	
SPECIAL REQUIREMENTS: N/A	

CHARPY IMPACT TEST

TESTING MACHINE: BALDWIN SATEC S1-1 K3 S/N 1706					
LINEAR VELOCITY OF HAMMER: 17 FT/SEC.			TEST METHOD: SIMPLE BEAM CHARPY		
COOLANT BATH: FTS SYSTEMS S/N G6-1			EFFECTIVE ENERGY: 300 FT/LBS./406.7 JOULES		
SPECIMEN TYPE: ASTM TYPE A LVNC			SPECIMEN SIZE: 10 MM X 10 MM		
SPECIMEN TEMP: -50° F			ACCEPTANCE CRITERIA: 15/12 FT/LBS.		
SPECIMEN LOCATION	WIDTH	EFFECTIVE SECTION SIZE	IMPACT VALUES FOOT POUNDS	% SHEAR FRACTURE	LATERAL EXPANSION
WELD	.394	.315	18	10	.016
WELD	.394	.315	21	10	.019
WELD	.394	.315	19	10	.014
HAZ	.394	.315	68	30	.048
HAZ	.394	.315	60	30	.042
HAZ	.394	.315	64	30	.045
BASE	.394	.315	142	50	.084
BASE	.394	.315	145	50	.086
BASE	.394	.315	139	50	.081

ACCEPTABLE [☒] REJECTABLE [☐] N/A [☐] PER APPLICABLE SPECIFICATIONS

GOOLSBY TESTING, INC.

PER: 

APPROVED SIGNED

Our letters and reports are for the use of our client to whom they are addressed. Our name may be used only with our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and do not necessarily represent the quality of other apparently similar or identical materials. The results recorded represent opinions only and are not to be considered as warranties or guarantees of quality, classification or usability of material examined. In no event shall the liability of Goolsby Testing, Inc. as to any items inspected or tested (including liability as to selection and/or results of such tests) exceed the charge of Goolsby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer's field representative upon signing of field ticket. Goolsby Testing reporting and certification are completed in accordance with ISO 17025.

TEX-FAB, INC



PRESSURE VESSELS

BUS (281)373-0855 FAX (281)373-5317

P.O. BOX 40508 HOUSTON, TEXAS 77240-0508

DATA PACKAGE FOR: SPX FLOW TECHNOLOGY SYSTEMS INC.

TEX-FAB, INC. S/O NO. 14-780 ITEM 1

P.O. NO. 4501044087

ITEM NO. 7-413417

(23)

DESCRIPTION: (23) FORMED AND WELDED CHANNELS.

PLEASE FIND ATTACHED ORIGINALS AND/OR COPIES OF THE FOLLOWING DATA AS REQUIRED:

ASME DATA REPORT: _____

MTR'S FOR MATERIAL: _____ X

RT REPORT: _____ X

UT REPORT: _____ X

MT REPORT: _____

PT REPORT: _____

HARDNESS REPORT: _____

HEAT TREAT CHART: _____

HYDRO CHART/REPORT: _____

NAME PLATE: _____

PRODUCTION WELD TEST: _____ X

REMARKS:

CHANNEL .75" THK x 6.5" WIDE x 14.5" TALL x 4.19" LONG.

SA-537 CL 1 MATERIAL. HEAT CODE: HC0068

CHANNEL CUPOLA TUBE (CHNL), 24" 600# M303A*

THANK YOUR FOR YOUR ORDER AND IF THERE ARE ANY QUESTION CONCERNING THIS DATA
PLEASE CALL ME AT (281) 373-0855 EXT. 14. * DESIGN AND CALCULATIONS NOT BY TEX-FAB, INC.

JAY JOHNSON
QUALITY CONTROL MANAGER



02/22/2014 From: AMERICAN ALLOY STEEL, INC.
P.O.#: VB14-791
Item: 1 (1 PC) 3/4" X 102" X 260" (MARK DOR)
TAG: PO# VB14-791

To: TEX-FAB, INC.
S.O.#: 495550
AA PL#: 8057697

TEST CERTIFICATE

SHIP TO:
ARCELORMITTAL PLATE LLC
AMERICAN ALLOY STEEL
6230 N HOUSTON ROSSLYN RD
NORTH HOUSTON TX 77091

PAGE NO: 01 OF 02
FILE NO: 0284-01-32
MILL ORDER NO: 24578-003
MELT NO: U0009
SLAB NO: 12C
DATE: 02/11/14
HIC 0068

SOLD TO:
AMERICAN ALLOY STEEL, INC
P. O. BOX 40469
HOUSTON TX 77240-0469

SEND TO:
AMERICAN ALLOY STEEL, INC
P. O. BOX 40469
ATTN: HOMER GARZA
HOUSTON, TX 77240-0469
01-C

STEEL PLATE DIMENSIONS / DESCRIPTION

TOTAL QTY	GAUGE	WIDTH	LENGTH	DESCRIPTION	PIECE WEIGHT
1	.75"	120"	480"	RECTANGLE	12252#

CUSTOMER INFORMATION

CUSTOMER PO: 97271

PART NO. 3

Certified a true copy of the
original test file.
AMERICAN ALLOY STEEL, INC.

SPECIFICATION (S)

THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S).

API 2H-9TH-EDITION YR 06 GR 50 S1 S3 S4
SUPPL. PARA. S5 APPLIES. ASTM A633 01 GR C, A131
08 GRS DH/EH36, MIL S 22698C GR DH36, ABB
PT-2-SECT-3 11 GRS DH/EH36 A537 08/ASME SA537 ED
13 CL 1 MOD .04 MAX CB

THE MANAGEMENT SYSTEMS FOR MANUFACTURE OF THIS PRODUCT ARE CERTIFIED TO ISO 9001:2008 (CERTIFICATE NO. 30130) AND ISO 14001 (CERTIFICATE NO. 009496).

CHEMICAL COMPOSITION

	C	MN	P	S	CU	SI	NI	CR	MO
MELT:U0009	.12	1.54	.011	.002	.17	.30	.07	.12	.01
	V	TI	B	AL	CB	CA	N	CEF	PCM
MELT:U0009	.001	.002	.0004	.040	.026	.0019	.0067	.42	.230

CARBON EQUIVALENT FORMULA (CEF)

CEF = C + (MN * .1667) + ((CR + MO + V) * .2000) + ((CU + NI) * .0667)

PCM FORMULA (PCM)

PCM = C + (SI / 30) + ((MN + CU + CR) / 20) + (NI / 60) + (MO / 15) + (V / 10) + (5 * B)

MANUFACTURE

FINELINE - VACUUM DEGASSED - FINE GRAIN PRACTICE

PA2557 447

WE HEREBY CERTIFY THE ABOVE INFORMATION IS CORRECT:

ARCELORMITTAL PLATE LLC
QUALITY ASSURANCE LABORATORY
139 MODENA ROAD
COATESVILLE, PA 19320



SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY

DATE: 9-22-14
BY: [Signature]

TEX-FAB, INC.
THIS CARBON SECTION WAS FORMED IN
ACCORDANCE WITH ASME CODE SECTION
VIII, DIV 1, UCS 79 (b) AND UG-80.

14780
MTR'S SUPPLIED BY TEX-FAB, INC.
CUST. SPX
P.O. # 4501044087
ITEM # 4602 7-413417

42710
AMERICAN ALLOY STEEL

09/22/2014 From: AMERICAN ALLOY STEEL, INC.
P.O.#: VB14-791
Item: 1 (1 PC) 3/4" X 102" X 260" (MARK DOR)
TAG: PO# VB14-791

To: TEX-FAB, INC.
S.O.#: 495550
AA PL#: 8057697

TEST CERTIFICATE

PAGE NO: 02 OF 02
FILE NO: 0284-01-32
MILL ORDER NO: 24578-003
MELT NO: U0009
SLAB NO: 12C
DATE: 02/11/14

HEAT TREAT CONDITION

MATL OR TEST	HEAT TREAT DESCRIPTION	NOM TEMP	HOLD MINS	COOL MTHD
PL/TEST	NORMALIZE	1650F	24	AIR COOL

TENSILE PROPERTIES

SLAB NO.	LOC	DIR	YIELD STRENGTH PSI X 100	TENSILE STRENGTH PSI X 100	ELONGATION GAGE LGTH	%	%R.A.
12C	BOT.	THRU GA.					
12C	TOP	THRU GA.					54.0
12C	BOT.	TRANS.	608	788	8.00"	27.0	61.0

CHARPY V-NOTCH IMPACT RESULTS

SLAB	LOC	DIR	TEMP	SIZE	FT. LBS.
12C	BOT.	TRANS.	-50F	FULL	139 139 176

GENERAL INFORMATION

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE U.S.A.
A.B.S. Q.A. CERTIFICATE 10-MMPOA-586.
MATERIAL HAS BEEN VACUUM DEGASSED AND CALCIUM TREATED
FOR SULFIDE SHAPE CONTROL.
FINELINE MOD FOR SULPHUR
TEST CERTS. ARE PREPARED IN ACCORD. WITH PROCEDURES
OUTLINED IN EN 10204:2004 TYPE 3.1.
MERCURY OR MERCURY COMPOUNDS ARE NOT USED IN THE
MANUFACTURE OF ARCELORMITTAL PLATE LLC PRODUCTS.
ACID SOLUBLE ALUMINUM
FOR MORE INFORMATION AND PROCESSING GUIDELINES, REFER TO
WWW.ARCELORMITTAL.COM/PLATEINFORMATION

B/L #42710 TTFX 80905

WE HEREBY CERTIFY THE ABOVE
INFORMATION IS CORRECT:

ARCELORMITTAL PLATE LLC
QUALITY ASSURANCE LABORATORY
139 MODENA ROAD
COATESVILLE, PA 19320

Elinore Zaplitny

SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY

Level II Interpreter:

GOOLSBY TESTING, INC.
2520 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-5125

Manufacturer: TEX. FAB. INC. Date: 10-7-74 S/O No: 14-780 S/N: 7-413411
 Diameter: 1 1/4" Thickness: 3/4" Material Type: CL3 Weld Thickness: Weld Reinforcement: 0
 Distance: Source to Object(MIN) 12 3/4" Source to Film(MAX) 13 1/2" Source side of obj. to film: 3 1/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ B31.1 ☐ B31.3 ☐ API 1104 ☒ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: Focal Size: 1x.1
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No.: 2000 Rev: 14-2
 Penetrant Size: 0 Placement: Source Side ☒ Film Side ☐ Shim Thickness:

PAGE 1 of 1

TECHNIQUE USED: S

RADIOGRAPHY REPORT

GT TICKET/ORDER ID#



ITEM 1 	ITEM 2 	ITEM 3 	ITEM 4 	ITEM 5 
---	---	--	---	---

Radiographic Terms and Abbreviations

[illegible]

Accepted by:

Representative of: Tax Falt. De.

Date: 4/2/14

Level II Radiographer: JASON BREWER

Level II Interpreter:

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goddard Testing, Inc. as to any items inspected (including any liability as to selection and/or results of such tests) exceed the charge of Goddard Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers of any items inspected.

Manufacturer: TEX FAB, INC. Date: 10-7-14 S/O No: 14-780 SN: 7-413417 Item 1-a

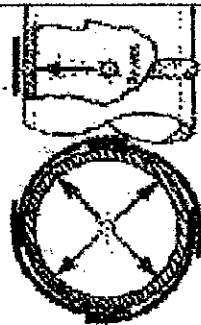
RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

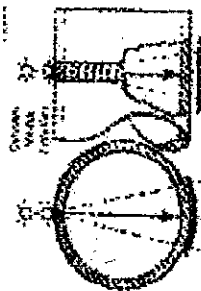
PAGE 1 of 1

TECHNIQUE USED: ✓

Index



2. INTRODUCTION



SEITE 10

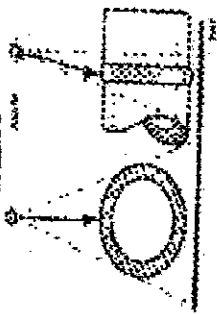
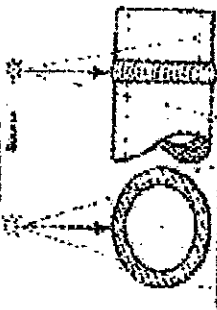
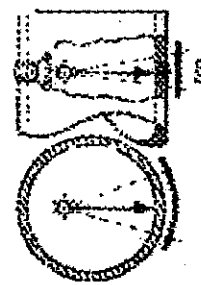


TABLE 4



5. METI



BE-Burn Thru HPA-Burn Thru Area C-Crack P-Porosity RW-Marrow Weld LC-Low Crown ST-Slag Inclusion SL-Slag Line
 NE-Non Fusion GE-Gas Pocket IU-Internal Undercut OU-Outside Undercut IF-Inadequate Penetration

[illegible]

Accepted by:

Representative of: Tex Fab, Inc.

Date:

170

Level II Radiographs
Level II Interpreter:

Level II Radiographer: JASON BREWER

The results reported represent recentest conditions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Coolisby Tackling Inc. as to any items inspected

GOOLSBY TESTING, INC.
2520 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416

Manufacturer: TEK FAB. INC. Date: 10-7-74 S/O No: 14-780 SN: 7-913417
 Diameter: 1 1/4 Thickness: 3/16 Material Type: 1/15 Weld Thickness: Weld Reinforcement 0
 Distance: Source to Object (MIN) 12 1/4 Source to Film (MAX) 13 1/2 Source side of obj. to film 3 1/4
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ B31.1 ☐ B31.3 ☐ API 1104 ☒ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: ER-192 ☒ CO-60 ☐ Curies:
 Film Mfg. Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No.: 2000 Rev: 17-2

GT TICKET/ORDER ID#

PAGE 1 of 1

TECHNIQUE USED

[illegible]

Accepted by:

Representative of: Tex Fab, Inc.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Global Testing, Inc. as to any items inspected or classified as unusable be limited in any way by any limitation on the remedy or damages available under applicable law. For the reasons stated above, the responsibility for the determination of the usability of the material examined shall remain with the customer.

GOOLSBY TESTING, INC.

2620 WILSON ROAD - P.O. BOX 1416

HUMBLE TX 77347-1416

PH: (281) 540-1255 FX: (281) 540-9125

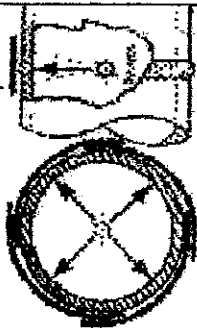
RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

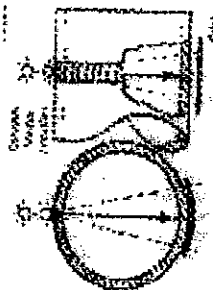
PAGE 1 of 1

TECHNIQUE USED:

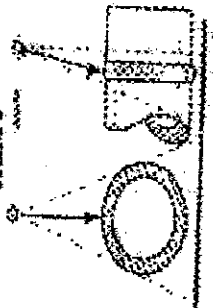
1. INTRODUCTION



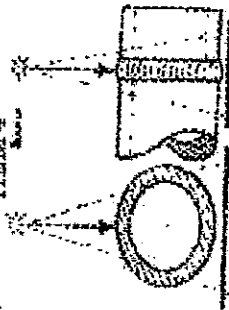
WITNESSES:



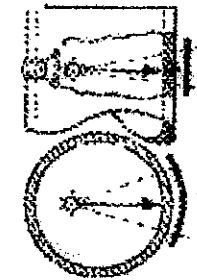
Ergebnisse



पृष्ठ संख्या १



25 10/10/2014



Radiographic Terms and Abbreviations

BT-Burn Thru	ETA-Burn Thru Area	C-Crack	P-Porosity	EW-Narrow Weld	LC-Low Crown	SI-Slag Inclusion	SL-Slag Line

[illegible]

Accepted by:

Representative of: Tex Fab, Inc.

Date: 10/14/14

Level II Radiographer: JASON BREWER

The results reported herein represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the facility of Goodisby Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goodisby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers field representative upon signing of field ticket.

Manufacturer: TEX FAB, INC. Date: 10-13-14 S/O No: 14-280 S/N: Icon 1-16 7-43417
 Diameter: 1 1/2" Thickness: 3/4" Material Type: 3/4" Weld Thickness: 3/4" Weld Reinforcement: ---
 Distance: Source to Object(MIN)6 1/2" Source to Film(MAX) 7 1/4" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ BS1.1 ☐ BS1.3 ☐ API 1104 ☐ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 92 Focal Size: lx
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No.: 2000 Rev.: 14-2
 Penetrant Size: B Placement: Source Side ☒ Film Side ☐ Shim Thickness: N/A
 Markers: Source Side ☐ Film Side ☒ Lead Screens: F 005 B 010

GT TICKET/ORDER ID#

PAGE 1 of 1
TECHNIQUE USED: 1

[illegible]

Accepted by: [Signature] Date: 10/14/19
 Representative of: Tex Fab, Inc.
 Level II Radiographer: JASON BREWER
 Level II Interpreter: [Signature]

The results represent present opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goodley Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goodley Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers field representative upon signing of field ticket.

Manufacturer: TEX FAB, INC. Date: 10-13-14 S/O No: 14-280 SN: Item 1-17 7-43917
 Diameter: 1 1/2" Thickness: 3/4" Material Type: C/S Weld Thickness: 3/4" Weld Reinforcement: ---

PH: (281) 540-1255 FX: (281) 540-8125

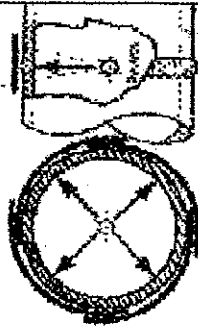
RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

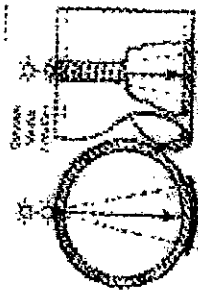
PAGE 1 of 1

TECHNIQUE USED:

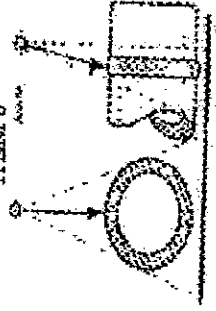
1. 在下列各数中，找出所有质数，并圈出来。



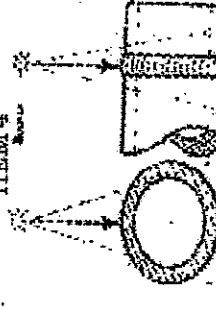
2. Method



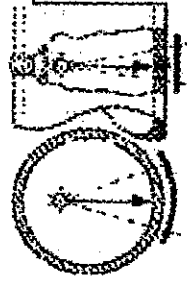
गणेश



1997



23 4 2 1 3 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104



Radiographic Terms and Abbreviations

BT-Burn Thru	BVA-Burn Thru Area	C-Crack	P-Porosity	NE-Narrow Weld	LC-Low Crown	SI-Slag Inclusion	SL-Slag Line
NP-Non Fusion	GP-Gas Pocket	IU-Internal Undercut	OU-Outside Undercut	IP-Inadequate Penetration			

[illegible]

Accepted by:

Representative of: Tex Fab. Inc.

Defin

2117148

T-1000

moderatissimi II laet

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material acquired. In no event shall the liability of Gossely Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Gossely Testing, Inc. for the inspection of such items. We shall assume no responsibility following acceptance by the customers field representative upon signing of field ticket.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality, classification or usability of material examined. In no event shall the liability of Goolbsy Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goolbsy Testing, Inc. for the inspection of such items. We shall assume no responsibility following acceptance by the customers representative upon signing of field ticket.

**GOOLSBY TESTING, INC.
2620 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416**

Manufacturer: TEX FAB, INC. Date: 10-14-14 S/O No: 14-780 S/N: 07413411
 Diameter: 1 1/4 Thickness: 3/4" Material Type: CL5 Weld Thickness: 3/4" Weld Reinforcement: 0
 Distance: Source to Object(MIN) 13 3/4" Source to Film(MAX) 13 1/2" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ B31.1 ☐ B31.3 ☐ API 1104 ☒ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1.8 Focal Size: 1x1
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No: 3050 Rev: 14-2
 Penetrant Size: 5 Placement: Source Side ☒ Film Side ☐ Shim Thickness: _____
 Markers: Source Side ☐ Film Side ☒ Lead Screens: F 005 B 010

PH: (281) 540-1255 FX: (281) 540-8125

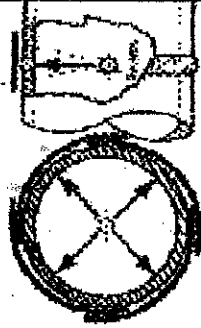
RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

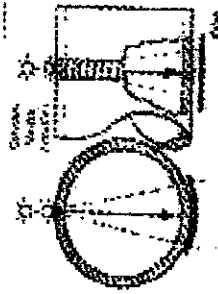
PAGE 1 of 1
TECHNIQUE USED: 5

TECHNIQUE USED: 5 Markers: Source Side

THE



2. METHOD



ITEM 3

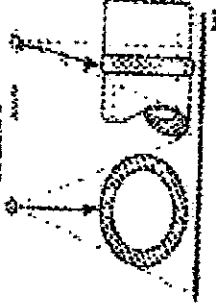
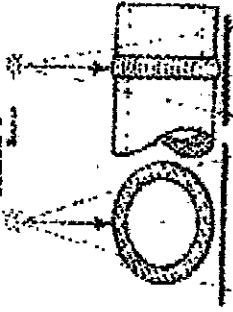
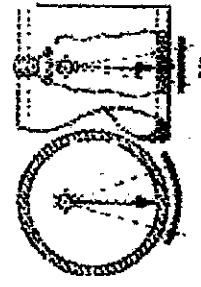


TABLE 4



THE



Radiographic Terms and Abbreviations

BT-Burn Thru	HTA-Burn Thru Area	C-Crack	B-Porosity	HT-Marrow Weld	LC-Low Crown	SI-Slag Inclusion	SI-Slag Line
		CP-Gas Pocket	IU-Internal Undercut	OU-Outside Undercut	IP-Inadequate Penetration		
		WE-Non Fusion					

[illegible]

Accepted by:

Representative of: Tex Fab, Inc.

Date: 10/4/14

Level II Radiographer: JASON BREWSTER

Level II Interpreter:

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goodbody Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goodbody Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers

GOOLSBY TESTING, INC.
2620 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-8125

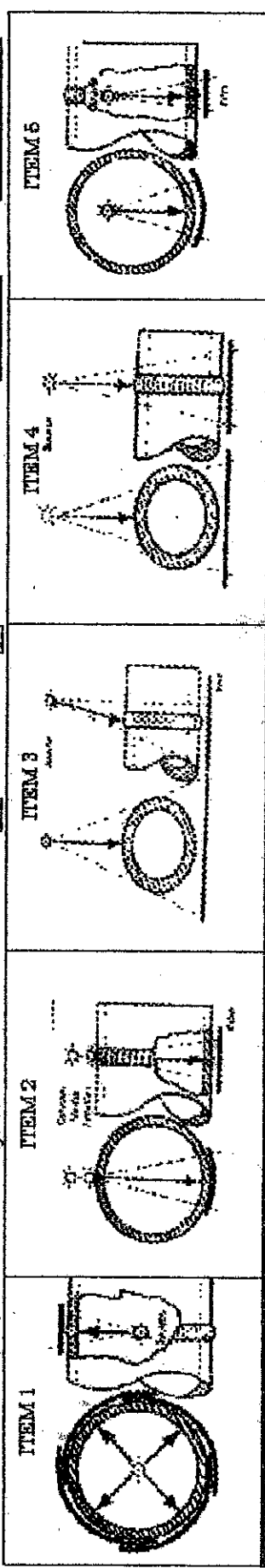
Manufacturer: TEX FAB, INC. Date: 10-14-14 S/O No: 14-780 SN: 7413417
 Diameter: 1 1/4 Thickness: 3/4" Material Type: CL5 Weld Thickness: 3/4" Weld Reinforcement: 0
 Distance: Source to Object (MIN) 12 3/4" Source to Film (MAX) 13 1/2" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ B31.1 ☐ B31.3 ☐ API 1104 ☒ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1.5
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No.: 2000 Rev.: 14-2
 Penetrant Size: 5 Placement: Source Side ☒ Film Side ☐ Shim Thickness: _____
 Markers: Source Side ☐ Film Side ☒ Lead Screens: F 005 B 210

RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

PAGE 1 of 1
TECHNIQUE USED: 5

TECHNIQUE USED: 5 Markers: ☐ Source Side ☒ Film Side ☒ Lead Screens: F-005 B-010



Radiographic Terms and Abbreviations

[illegible]

Accepted by: [Signature] Date: 10/14/74
 Representative of: Tex Fab, Inc.
 Level II Radiographer: JASON BREWER
 Level II Interpreter: [Signature]

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of materials examined. In no event shall the liability of Goodby Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goodby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers

GOOLSBY TESTING, INC.
2620 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-8125

Manufacturer: TEX. FAB. INC. Date: 10-14-14 S/O No: 14-780 S/N: 7-413417
 Diameter: 1 1/4 Thickness: 3/4 Material Type: CL5 Weld Thickness: 3/4 Weld Reinforcement: 0
 Distance: Source to Object (MIN) 13 1/4 Source to Film (MAX) 13 1/2 Source side of obj. to film: 3/4
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. VIII ☒ B31.1 ☐ B31.3 ☐ API 1104 ☒ UW51 ☐ UW52
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: _____ Focal Size: 1/8
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: N/A Amperage: N/A Procedure No.: 2000 Rev.: 14-2
 Penetrant Size: 6 Placement: Source Side ☒ Film Side ☐ Shim Thickness: _____

RADIOGRAPHY REPORT

GT TICKET ORDER ID#

PAGE 1 of

TECHNIQUE USED:

[illegible]

Accepted by:

Date: 11/4/14

Level II Radiographer: JASON BREWER

Representative of: Tex Fab, Inc.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goodisby Testing, Inc. and any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goodisby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer.

09/22/2014 From: AMERICAN ALLOY STEEL, INC. To: TEX-FAB, INC.
P.O.#: VB14-791 S.O.#: 495550 AA PL#: 8057697
Item: 1 (1 PC) 3/4" X 102" X 260" (MARK DOR)
TAG: PO# VB14-791

TEST CERTIFICATE

UT NON-DESTRUCTIVE TESTING REPORT DATE: 12/16/2013

CUSTOMER: AM.ALLOY STL-TX ORDER/ITEM NO: 24578 - 003
INSPECTOR: G. BOOTS (LEVEL I SNT-TC-1A)
MATERIAL SPECIFICATION: API 2H-9TH-EDITION 06 50
CUST NO: 0284-01-32 PURCH ORD NO: 97271
PART NO: 3 WITNESSED BY:
NDE SPEC: A578-07 L-A 8-1 RECORDABLE INDICATIONS:
GAUGE: 0.750000 WIDTH: 120.000000 LENGTH: 480.000000 UT: SB
DIV-LTR: X CHARGE: 49398 POS: 02 PATT: 001 MELT: U0009 SLAB: 12C QTY: 1
COUPLANT: SOAP&WATER TYPE OF SURFACE: AS ROLLED MARK NO:
EQUIPMENT USED: OMNISCAN-MX SERIAL NUM: 240 CALIB DATE: 02/13/2014
METHOD: CONTACT AMPLITUDE: 75 GRID REF: 100%
TRANSDUCER: AEROTECH SIZE: 1.000 FREQ: 2.2500

LOC-1:
LOC-2 LOC-4
LOC-3:

HEREBY CERTIFY THAT THE ABOVE MATERIAL MEETS THE NON-DESTRUCTIVE TEST REQUIREMENTS FOR THE ABOVE SPECIFICATION. KNOWINGLY OR WILLINGLY RECORDING FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS ON ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.

MICHAEL HARTZ
INSPECTION SUPERVISOR
LEVEL II SNT-TC-1A

WE HEREBY CERTIFY THE ABOVE
INFORMATION IS CORRECT:

ARCELORMITTAL PLATE LLC
QUALITY ASSURANCE LABORATORY
139 MODENA ROAD
COATESVILLE, PA 19320

Elinore Zaplitny
SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY



14-780

GOOLSBY TESTING, INC.

2620 WILSON ROAD - P.O. BOX 1416

HUMBLE, TEXAS 77347-1416

(281) 540-1255 FAX (281) 540-8125

Test Lab
Cert 3119.01

CLIENT: TEX FAB	DATE RECEIVED: 10-2-14
PO BOX 40508	DATE TESTED: 10-3-14
HOUSTON, TX 77240	REPORT DATE: 10-3-14
PURCHASE ORDER: 14-780	LABORATORY TEST NO: 14-10-92866
GT#: 1655 SHOP ORDER#: 14-780	TECHNICIAN: CHARLES WILLIAMS
HEAT #: HC0068 SLAB #: N/A	PROCEDURE: #15 #16
HUMIDITY: 42.5	LIGHTING: 205FC
ENVIRONMENTAL CONDITIONS: BP: 30.1	TEMP: 70.7° F
MATERIAL THICKNESS: 3/4"	
MATERIAL/DESCRIPTION: SA537-1(N) WELDED PLATE	
SPECIFICATIONS: ASME SECT VIII DIV 1 PER UG84	
SPECIAL REQUIREMENTS: N/A	

CHARPY IMPACT TEST

TESTING MACHINE: BALDWIN SATEC S1-1 K3 S/N 1706					
LINEAR VELOCITY OF HAMMER: 17 FT/SEC.			TEST METHOD: SIMPLE BEAM CHARPY		
COOLANT BATH: FTS SYSTEMS S/N G6-1			EFFECTIVE ENERGY: 300 FT/LBS./406.7 JOULES		
SPECIMEN TYPE: ASTM TYPE A LVNC			SPECIMEN SIZE: 10 MM X 10 MM		
SPECIMEN TEMP: -50° F			ACCEPTANCE CRITERIA: 18/15 FT/LBS.		
SPECIMEN LOCATION	WIDTH	EFFECTIVE SECTION SIZE	IMPACT VALUES FOOT POUNDS	% SHEAR FRACTURE	LATERAL EXPANSION
WELD	.394	.315	18	10	.017
WELD	.394	.315	16	10	.015
WELD	.394	.315	21	10	.019
HAZ	.394	.315	130	50	.081
HAZ	.394	.315	135	50	.083
HAZ	.394	.315	128	50	.078
BASE	.394	.315	170	50	.092
BASE	.394	.315	181	50	.096
BASE	.394	.315	176	50	.094

ACCEPTABLE [☒] REJECTABLE [☐] N/A [☐] PER APPLICABLE SPECIFICATIONS

GOOLSBY TESTING, INC.

PER: 

APPROVED SIGNED

Our letters and reports are for the use of our client to whom they are addressed. Our name may be used only with our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and do not necessarily represent the quality of other apparently similar or identical materials. The results recorded represent opinions only and are not to be considered as warranties or guarantees of quality, classification or usability of material examined. In no event shall the liability of Goolsby Testing, Inc. as to any items inspected or tested (including liability as to selection and/or results of such tests) exceed the charge of Goolsby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer's field representative upon signing of field ticket. Goolsby Testing reporting and certification are completed in accordance with ISO 17025.

TEX-FAB, INC

BUS (281)373-0855 FAX (281)373-5317



PRESSURE VESSELS

P.O. BOX 40508 HOUSTON, TEXAS 77240-0508

DATA PACKAGE FOR: SPX FLOW TECHNOLOGY SYSTEMS INC.

TEX-FAB, INC. S/O NO. 14-793

P.O. NO. 4501049415

ITEM NO. 7-413417

(10)

DESCRIPTION: (10) FORMED AND WELDED CHANNELS.

PLEASE FIND ATTACHED ORIGINALS AND/OR COPIES OF THE FOLLOWING DATA AS REQUIRED:

ASME DATA REPORT: _____

MTR'S FOR MATERIAL: _____ X

RT REPORT: _____ X

UT REPORT: _____ X

MT REPORT: _____

PT REPORT: _____

HARDNESS REPORT: _____

HEAT TREAT CHART: _____

HYDRO CHART/REPORT: _____

NAME PLATE: _____

PRODUCTION WELD TEST: _____ X

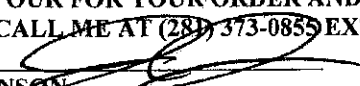
REMARKS:

CHANNEL .75" THK x 6.5" WIDE x 14.5" TALL x 4.19" LONG.

SA-537 CL 1 MATERIAL. HEAT CODE: HC0069

CHANNEL CUPOLA TUBE (CHNL), 24" 600# M303A*

THANK YOUR FOR YOUR ORDER AND IF THERE ARE ANY QUESTION CONCERNING THIS DATA
PLEASE CALL ME AT (281) 373-0855 EXT. 14. * DESIGN AND CALCULATIONS NOT BY TEX-FAB, INC.


JAY JOHNSON
QUALITY CONTROL MANAGER



1. *Introduction*

2. *Background*

3. *Methods*

4. *Results*

5. *Conclusion*

6. *References*

7. *Appendix*

8. *Supplementary Materials*

9. *Tables*

10. *Figures*

11. *Tables*

12. *Figures*

13. *Tables*

14. *Figures*

15. *Tables*

16. *Figures*

17. *Tables*

18. *Figures*

19. *Tables*

20. *Figures*

21. *Tables*

22. *Figures*

23. *Tables*

24. *Figures*

25. *Tables*

26. *Figures*

27. *Tables*

28. *Figures*

29. *Tables*

30. *Figures*

31. *Tables*

32. *Figures*

33. *Tables*

34. *Figures*

35. *Tables*

36. *Figures*

37. *Tables*

38. *Figures*

39. *Tables*

40. *Figures*

41. *Tables*

42. *Figures*

43. *Tables*

44. *Figures*

45. *Tables*

46. *Figures*

47. *Tables*

48. *Figures*

49. *Tables*

50. *Figures*

51. *Tables*

52. *Figures*

53. *Tables*

54. *Figures*

55. *Tables*

56. *Figures*

57. *Tables*

58. *Figures*

59. *Tables*

60. *Figures*

61. *Tables*

62. *Figures*

63. *Tables*

64. *Figures*

65. *Tables*

66. *Figures*

67. *Tables*

68. *Figures*

69. *Tables*

70. *Figures*

71. *Tables*

72. *Figures*

73. *Tables*

74. *Figures*

75. *Tables*

76. *Figures*

77. *Tables*

78. *Figures*

79. *Tables*

80. *Figures*

81. *Tables*

82. *Figures*

83. *Tables*

84. *Figures*

85. *Tables*

86. *Figures*

87. *Tables*

88. *Figures*

89. *Tables*

90. *Figures*

91. *Tables*

92. *Figures*

93. *Tables*

94. *Figures*

95. *Tables*

96. *Figures*

97. *Tables*

98. *Figures*

99. *Tables*

100. *Figures*

101. *Tables*

102. *Figures*

103. *Tables*

104. *Figures*

105. *Tables*

106. *Figures*

107. *Tables*

108. *Figures*

109. *Tables*

110. *Figures*

111. *Tables*

112. *Figures*

113. *Tables*

114. *Figures*

115. *Tables*

116. *Figures*

117. *Tables*

118. *Figures*

119. *Tables*

120. *Figures*

121. *Tables*

122. *Figures*

123. *Tables*

124. *Figures*

125. *Tables*

126. *Figures*

127. *Tables*

128. *Figures*

129. *Tables*

130. *Figures*

131. *Tables*

132. *Figures*

133. *Tables*

134. *Figures*

135. *Tables*

136. *Figures*

137. *Tables*

138. *Figures*

139. *Tables*

140. *Figures*

141. *Tables*

142. *Figures*

143. *Tables*

144. *Figures*

145. *Tables*

146. *Figures*

147. *Tables*

148. *Figures*

149. *Tables*

150. *Figures*

151. *Tables*

152. *Figures*

153. *Tables*

154. *Figures*

155. *Tables*

156. *Figures*

157. *Tables*

158. *Figures*

159. *Tables*

160. *Figures*

161. *Tables*

162. *Figures*

163. *Tables*

164. *Figures*

165. *Tables*

166. *Figures*

167. *Tables*

168. *Figures*

169. *Tables*

170. *Figures*

171. *Tables*

172. *Figures*

173. *Tables*

174. *Figures*

175. *Tables*

176. *Figures*

177. *Tables*

178. *Figures*

179. *Tables*

180. *Figures*

181. *Tables*

182. *Figures*

183. *Tables*

184. *Figures*

185. *Tables*

186. *Figures*

187. *Tables*

188. *Figures*

189. *Tables*

190. *Figures*

191. *Tables*

192. *Figures*

193. *Tables*

194. *Figures*

195. *Tables*

196. *Figures*

197. *Tables*

198. *Figures*

199. *Tables*

200. *Figures*

201. *Tables*

202. *Figures*

203. *Tables*

204. *Figures*

205. *Tables*

206. *Figures*

207. *Tables*

208. *Figures*

209. *Tables*

210. *Figures*

211. *Tables*

212. *Figures*

213. *Tables*

214. *Figures*

215. *Tables*

216. *Figures*

217. *Tables*

218. *Figures*

219. *Tables*

220. *Figures*

221. *Tables*

222. *Figures*

223. *Tables*

224. *Figures*

225. *Tables*

226. *Figures*

227. *Tables*

228. *Figures*

229. *Tables*

230. *Figures*

231. *Tables*

232. *Figures*

233. *Tables*

234. *Figures*

235. *Tables*

236. *Figures*

237. *Tables*

238. *Figures*

239. *Tables*

240. *Figures*

241. *Tables*

242. *Figures*

243. *Tables*

244. *Figures*

245. *Tables*

246. *Figures*

247. *Tables*

248. *Figures*

249. *Tables*

250. *Figures*

251. *Tables*

252. *Figures*

253. *Tables*

254. *Figures*

255. *Tables*

256. *Figures*

257. *Tables*

258. *Figures*

259. *Tables*

260. *Figures*

261. *Tables*

262. *Figures*

263. *Tables*

264. *Figures*

265. *Tables*

266. *Figures*

267. *Tables*

268. *Figures*

269. *Tables*

270. *Figures*

271. *Tables*

272

Item 1-1

GOOLSBY TESTING, INC.
2620 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-8125

Manufacturer: TEX FAB, INC. Date: 10-23-14 S/O No: 14-793 S/N: 7-413417
Diameter: 1 1/2" Thickness: 3/4" Material Type: CL5 Weld Thickness: 3/4" Weld Reinforcement: 0
Distance: Source to Object (MIN) 3" Source to Film (MAX) 13 3/4" Source side of obj. to film: 3/4"
Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
Spec. ASME SEC. 8 ☒ B31.1 ☐ B31.3 ☐ API 1104 ☐ Procedure No.: 2000 Rev.: 1482
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1 x 1
Film Mfg: Kodak Type: M X-Ray ☐ Voltage: 240 Amperage: 15 11/15-1
Penetrant Size: B Placement: Source Side ☒ Film Side ☐ Shim Thickness:
Markers: Source Side ☐ Film Side ☒ Lead Screens: F 1.005 B 0.0

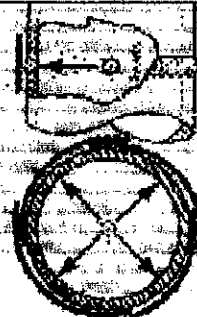
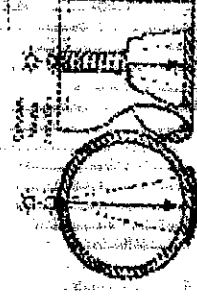
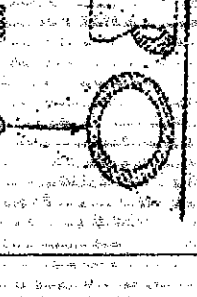
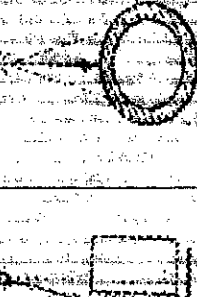
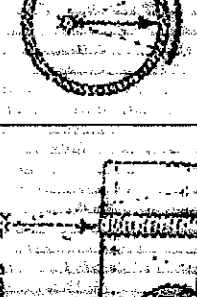
RADIOGRAPHY REPORT

GT TICKET/ORDER ID#



PAGE 1 of 1

TECHNIQUE USED: 5

ITEM 1		ITEM 2		ITEM 3		ITEM 4		ITEM 5	
									
Weld Number	1	2	3	4	5	6	7	8	9
Interpretation	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code
Density									
# of Visible Wires									
Remarks									
Weld Number	1	2	3	4	5	6	7	8	9
Interpretation	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code	Within Code
Density									
# of Visible Wires									
Remarks									

Accepted by: [Signature] Date: 10/23/14
Level II Radiographer: [Signature]
Level II Interpreter: [Signature]
Representative of: TEX FAB
The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goolsbey Testing, Inc. as in any item inspected or tested or evaluated and evaluated, as in the captioned contract, exceed the amount of such tests. We shall assume no responsibility following the acceptance by the customers.

[illegible]

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goolisv Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goolisv Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers.

The diagram shows a mechanical assembly. On the left is a circular component with a central hub and spokes, resembling a wheel or a flywheel. To its right is a vertical assembly consisting of a cylindrical body with a flange at the top and a smaller cylindrical component attached to its side. A horizontal line connects the central hub of the circular component to the side of the vertical assembly, suggesting a shaft or a linkage mechanism.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goolbsy Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Goolbsy Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goodisby Testing, Inc. as to any items inspected or tested (excluding new facilities) as to selection and/or results of such tests exceed the terms of Goodisby Testing, Inc.'s for the acceptance of such items. We shall assume no responsibility following the acceptance by the customers

GGOLDSBY TESTING, INC.
2820 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-8125

Manufacturer: TEX FAB, INC. Date: 10-23-14 S/O No: 14-793 SN: 7-413417
 Diameter: 1 1/2 Thickness: 3/4" Material Type: CL5 Weld Thickness: 3/4" Weld Reinforcement: 0
 Distance: Source to Object(MIN) 13" Source to Film(MAX) 13 3/4" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC.8 ☒ B31.1 ☐ B31.3 ☐ API 1104 ☐ Procedure No.: 2000 Rev.: 14-2
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1 x 1 Focal Size: 1 x 1
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: 1451 Amperage: 1451
 Penetrant Size: 2 Placement: Source Side ☒ Film Side ☐ Shim Thickness: 0
 Markers: Source Side ☐ Film Side ☒ Lead Screens: F 1005 B 000

BT TICKET/ORDER ID#

PAGE 1 of 1
TECHNIQUE USED: 5

RADIOGRAPHY REPORT



ITEM 1		ITEM 2		ITEM 3		ITEM 4		ITEM 5	
Weld Number	12	Weld Number	12	Weld Number	12	Weld Number	12	Weld Number	12
Film Number	12	Film Number	12	Film Number	12	Film Number	12	Film Number	12
Interpretation		Interpretation		Interpretation		Interpretation		Interpretation	
Within Code		Within Code		Within Code		Within Code		Within Code	
Beyond Code		Beyond Code		Beyond Code		Beyond Code		Beyond Code	
Density		Density		Density		Density		Density	
# of Visible Wires		# of Visible Wires		# of Visible Wires		# of Visible Wires		# of Visible Wires	
Remarks		Remarks		Remarks		Remarks		Remarks	

Accepted by: [Signature] Date: 10/23/14
 Representative of: TEXAS 103 INC
 Level II Radiographer: [Signature]
 Level II Interpreter: [Signature]
 The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goodley-Testina, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charges of Goodley-Testina, Inc. for the inspection of such items. We shall assume no responsibility following a resistance by the customers

GOOLSBY TESTING, INC.
2820 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416
PH: (281) 540-1255 FX: (281) 540-8123

Manufacturer: TEX FAB, INC. Date: 10-23-14 S/O No: 14-793 SN: 7-413417
 Diameter: 1 1/2 Thickness: 3/4" Material Type: C/L Weld Thickness: 3/4" Weld Reinforcement: Ø
 Distance: Source to Object(MIN) 13" Source to Film(MAX) 13-3/4" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. 8 ☒ B31.1 ☐ B31.3 ☐ API 1104 ☐ Procedure No.: 2000 Rev.: 14-2
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1 Focal Size: 1x.1
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: 24 kV 5 Amperage: 14 mA 5
 Penetrator Size: B Placement: Source Side ☒ Film Side ☐ Shim Thickness: 0
 Markers: Source Side ☐ Film Side ☒ Lead Screens: F 1005 B 010

PAGE 1 of 5
TECHNIQUE USED: 5

RADIOGRAPHY REPORT

GT TICKET/ORDER ID#

[illegible]

Accepted by:

Representative of:

Date: 10/23/14

Level II Radiographer:

Level II Interpreter:

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Gosselin Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the terms of Gosselin Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customers.

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Gosses-Testing, Inc. as to any items inspected or tested (including any liability) so in connection with the results of such tests exceed the amount of \$100,000.00 per test item. The undersigned hereby certifies that the undersigned has reviewed the results of such tests and agrees to accept the same.

[Signature]

[Signature]

Level II Interpreter:

Auberson Brewer

Item 19

ॐ

PAGE 1 of 5
TECHNIQUE USED: 5

B.017

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

Date:

Level II Radiographic

西交BAC

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Golsbush Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the charge of Golsbush Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer

GOOLSBY TESTING, INC.
2820 WILSON ROAD - P.O. BOX 1416
HUMBLE TX 77347-1416

Manufacturer: TEX FAB. INC. Date: 10-23-74 S/O No: 14-793 S/N: 7-413417
 Diameter: 1 1/2 Thickness: 3/4" Material Type: CL5 Weld Thickness: 3/4" Weld Reinforcement: Ø
 Distance: Source to Object(MIN) 13" Source to Film(MAX) 13-3/4" Source side of obj. to film: 3/4"
 # Film in cassette: 1 Wall Exposure: Single ☒ Double ☐ Viewing: Single ☒ Double ☐ Wall
 Spec. ASME SEC. 8 ☒ B31.1 ☐ B31.3 ☐ API 1104 ☐ Procedure No.: 2000 Rev.: 14-2
☐ PED (97/23/EC) AWS D1.1 ☐ Radiation: IR-192 ☒ CO-60 ☐ Curies: 1X.1 Focal Size: 1X.1
 Film Mfg: Kodak Type: M X-Ray ☐ Voltage: Ø Amperage: ☒ 4W51

GT TICKET/ORDER ID#

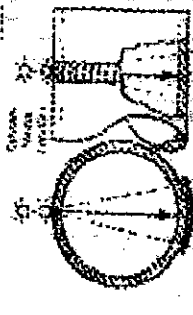
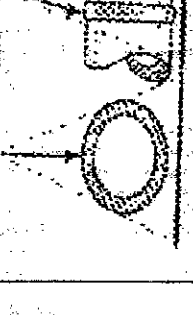
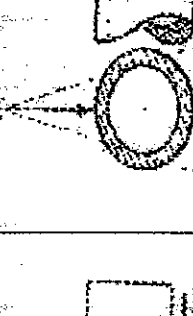
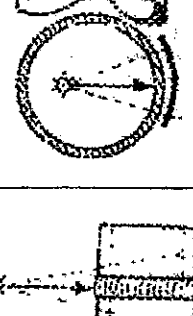
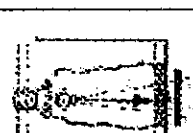
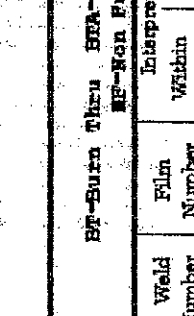
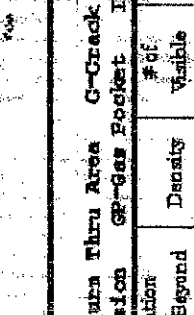
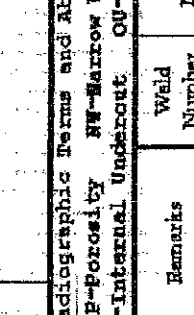
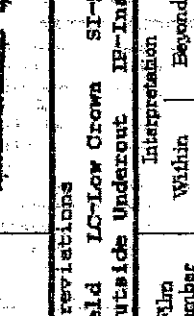
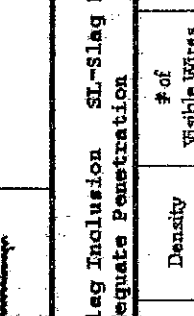
PAGE 1 of 5
TECHNIQUE USED: 5

TECHNIQUE USED: 5 Markers: ☐ Source Side ☒ Film Side 7 Lead Screens: F, 005 B .010

B . 010

RADIOGRAPHY REPORT



ITEM 1		ITEM 2		ITEM 3		ITEM 4		ITEM 5		
										

Accepted by:

Accepted by: _____
Representative of: _____

Date:

07/28/07

Level II Radiographer:

Level II Interpreter:

The results reported represent opinions only and are not to be considered as warranties or guarantees of quality classification or usability of material examined. In no event shall the liability of Goolbsy Testing, Inc. as to any items inspected or tested (including any liability as to selection and/or results of such tests) exceed the terms of the incorporation of such items. We shall assume no responsibility following the acceptance by the customers

09/30/2014 From: AMERICAN ALLOY STEEL, INC.

To: TEX-FAB, INC.

P.O.#: VB14-793

S.O.#: 496334

AA PL#: 8058276

Item: 1 (1 PC) 3/4" X 50" X 60" (MARK DOR)

TAG: PO# VB14-793

SSAB

cert 081-423431 order 41-385247-11

TS-Lab Form 3.13

Equipment Serial No: 1635

Revision: 10

Date: 11/11/2014

Ultrasonic Examination Report

1. Description of material examined:

Grade: APL2H-50
Heat/Slab/Dau. No: E4A089 C28 A01
Plate Bundle No: 4090062 / 6493969
Cust. Sonic Spec:

Gauge: 0.750 (stenciled)
Width: 120.00 (stenciled)
Length: 480.000

2. Examination performed in accordance with TS Lab-QSP 3.12 and/or ASTM Standard #:

Check ALL that apply:

☒ 435/435M ☒ A578-A ☒ A578-B ☒ A578-C

3. Equipment Description: (Manufacturer, Model)

Omniscan MX 16.16

Transducer Diameter: 1" Beam Type: Straight Couplant: Water
Frequency: 5 MHz

4. Examination Results: (see defect map) ☒ Acceptable ☐ Rejectable (check one)

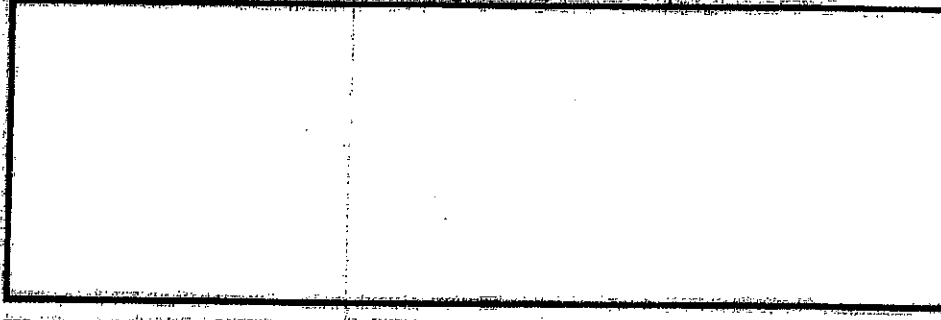
Type defect: (Centerline Segregation; Surface crack; Pinhole; Internal Crack)

Comments:

5. Examination Volume:

100% UT

Defect Map: Mark Location of Defect(s) with length, width, thickness/depth

6. Re-Examination Required: ☒ No ☐ Yes (check one)

7. Re-Examination: (If performed)

Re-Examination performed in accordance with UT procedure QSP 3.12 or ASTM #:

Equipment identical to #3 above: ☐ No ☐ If Not Specify:Examination: ☒ Re-Examination: (Check One)

Performed by: JOHNNY D. WHIGHAM

☒ I ☐ II ☐ III (circle one)

I have reviewed the UT results and approve the results for SSAB Alabama Inc.

Approval Signature:

Qualification Level: ☒ I ☐ II ☐ III (circle one)

Date: 11/11/2014



14-793

GOOLSBY TESTING, INC.

2620 WILSON ROAD - P.O. BOX 1416
HUMBLE, TEXAS 77347-1416
(281) 540-1255 FAX (281) 540-8125

CLIENT: TEX FAB	DATE RECEIVED: 10/6/14
PO BOX 40508	DATE TESTED: 10/7/14
HOUSTON, TX 77240	REPORT DATE: 10/7/14
PURCHASE ORDER: 14-793	LABORATORY TEST NO: 14-10-89288
GT#: 1674 SHOP ORDER#: 14-793	TECHNICIAN: RICHARD CLAY
HEAT #: HC0069 SLAB #: N/A	PROCEDURE: #15 #16
HUMIDITY: 50.3	LIGHTING: 205 FC
ENVIRONMENTAL CONDITIONS: BP: 29.95	TEMP: 71.1° F
MATERIAL THICKNESS: 3/4" X 12" X 12"	
MATERIAL/DESCRIPTION: SA537-1(N)	
SPECIFICATIONS: ASME SECT. VIII DIV. 1 PER UG84	
SPECIAL REQUIREMENTS: N/A	

CHARPY IMPACT TEST

TESTING MACHINE: BALDWIN SATEC S1-1 K3 S/N 1706					
LINEAR VELOCITY OF HAMMER: 17 FT/SEC.			TEST METHOD: SIMPLE BEAM CHARPY		
COOLANT BATH: FTS SYSTEMS S/N G6-1			EFFECTIVE ENERGY: 300 FT/LBS./406.7 JOULES		
SPECIMEN TYPE: ASTM TYPE A LVNC			SPECIMEN SIZE: 10 MM X 10 MM		
SPECIMEN TEMP: -50° F			ACCEPTANCE CRITERIA: 18/15 FT/LBS.		
SPECIMEN LOCATION	WIDTH	EFFECTIVE SECTION SIZE	IMPACT VALUES FOOT POUNDS	% SHEAR FRACTURE	LATERAL EXPANSION
WELD	.394	.315	19	10	.016
WELD	.394	.315	22	10	.017
WELD	.394	.315	18	10	.017
HAZ	.394	.315	24	20	.026
HAZ	.394	.315	27	20	.027
HAZ	.394	.315	24	20	.029
BASE	.394	.315	76	40	.066
BASE	.394	.315	80	40	.069
BASE	.394	.315	77	40	.068

ACCEPTABLE [☒] REJECTABLE [☐] N/A [☐] PER APPLICABLE SPECIFICATIONS

GOOLSBY TESTING, INC

PER:

APPROVED SIGNEE

Our letters and reports are for the use of our client to whom they are addressed. Our name may be used only with our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and do not necessarily represent the quality of other apparently similar or identical materials. The results recorded represent opinions only and are not to be considered as warranties or guarantees of quality, classification or usability of material examined. In no event shall the liability of Goolsby Testing, Inc. as to any items inspected or tested (including liability as to selection and/or results of such tests) exceed the charge of Goolsby Testing, Inc. for the inspection of such items. We shall assume no responsibility following the acceptance by the customer's field representative upon signing of field ticket. Goolsby Testing reporting and certification are completed in accordance with ISO 17025.

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004

INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013

MATERIAL TEST REPORT (MTR)

A05 Established inspecting body

A06 Purchaser

Final receiver

NORTH SHORE, HOUSTON

NORTH SHORE, HOUSTON

A07.1 No. 230599

A07.2 No.

SA516-70/A516-70

ASME-III-A:2010+ADDENDA-2011A/ASTM-A516:10

Description of the product

B01-B99

B03 Number of pieces

B04 Thickness

B05 Width

B06 Length

B07 Theoretical mass

B08 Product delivery condition

B09 Heat No.

B10 Rolled plate No./ Test No.

B11 Purchaser article number

A10 Advice of dispatch No./ Date of dispatch

A08 Manufacturer's order/ Certificate No.

B01 Product

HEAVY PLATES

4491439-10.12.13

387775-002

1/

A01

Dillinger France

Port 3032

3032 rue du Comte Jean - CS 56317

F-59379 Dunkerque Cedex 1 - FRANCE

Service Qualité-Essais

Date 17.02.14

IM 2

A01

Dillinger France

Port 3032

3032 rue du Comte Jean - CS 56317

F-59379 Dunkerque Cedex 1 - FRANCE

Service Qualité-Essais

Date 17.02.14

IM 2

A01

Dillinger France

Port 3032

3032 rue du Comte Jean - CS 56317

F-59379 Dunkerque Cedex 1 - FRANCE

Service Qualité-Essais

Date 17.02.14

IM 2

QM-System: Certification as per ISO 9001

Erklärungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013		A10 Advice of dispatch No./ Date of dispatch 4491439-10.12.13	A08/ Manufacturer's order/ A03 Certificate No. 387775-002	Sheet 2/...																																																		
A05 Established inspecting body DF		A06 Purchaser NORTH SHORE, HOUSTON	A07.1 No. 230599	B01 Product HEAVY PLATES																																																		
A06 Final receiver NORTH SHORE, HOUSTON		A07.2 No.																																																				
B02/ Steel design. SA516-70/A516-70 B03 Any suppl. ASME-III-A:2010+ADDENDA-2011A/ASTM-A516:10 requirements																																																						
B01-B99 Description of the product <table border="1"> <thead> <tr> <th>B14 Item No.</th> <th>B08 Number of pieces</th> <th>B09 Thickness</th> <th>B10 Width</th> <th>B11 Length</th> <th>B12 Theoretical mass</th> <th>B04 Product delivery condition</th> <th>B07.2 Heat No.</th> <th>B07.1 Rolled plate No./ Test No.</th> <th>A09 Purchaser article number</th> </tr> </thead> <tbody> <tr> <td>05</td> <td>1</td> <td>3,2500 x</td> <td>96,00000 x</td> <td>300,00000</td> <td>13041 N</td> <td></td> <td>389336</td> <td>182290-01</td> <td></td> </tr> <tr> <td>**</td> <td>2</td> <td></td> <td></td> <td></td> <td>24082</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>06</td> <td>1</td> <td>3,2500 x</td> <td>106,00000 x</td> <td>260,00000</td> <td>11522 N</td> <td></td> <td>389335</td> <td>182295-01</td> <td></td> </tr> <tr> <td>***</td> <td>21</td> <td></td> <td></td> <td></td> <td>302244</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> B04 Product delivery condition ITEM NO.: 01-06 N: HT: 910 GR.C +15 -15 GR.C SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1.75 MIN/MM (25-45 MIN/INCH) COOLING IN STILL AIR B06 Marking of the product ITEM NO.: 01-06 STEEL DESIGNATION SA516 70MTLV HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. B07-B99 Further information about the product ITEM NO.: 01-06 THICKNESS REDUCTION RATIO >= 3,0 IS FULFILLED (CF. A/SA20 PAR. 5.3)					B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number	05	1	3,2500 x	96,00000 x	300,00000	13041 N		389336	182290-01		**	2				24082					06	1	3,2500 x	106,00000 x	260,00000	11522 N		389335	182295-01		***	21				302244				
B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number																																													
05	1	3,2500 x	96,00000 x	300,00000	13041 N		389336	182290-01																																														
**	2				24082																																																	
06	1	3,2500 x	106,00000 x	260,00000	11522 N		389335	182295-01																																														
***	21				302244																																																	
A04	TFK Manufacturer's mark			A01 Dillinger France Port 3032 3032 rue du Comte Jean - CS 56317 F-59379 Dunkerque Cedex 1 - FRANCE Service Qualité-Essais Date 17.01.14 PC-SSONNET Test House Manager																																																		

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004		A10 Advice of dispatch No./ Date of dispatch:		A08 Manufacturer's order/ A03 Certificate No.	Sheet
INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013		4491439-10.12.13		387775-002	3 / ...
MATERIAL TEST REPORT (MTR)				B01 Product	
A05 Established inspecting body	A06 Purchaser	A07.1 No. 230599		HEAVY PLATES	
DF	Final receiver	NORTH SHORE, HOUSTON			
		NORTH SHORE, HOUSTON			
B02 Steel design.	SA516-70/A516-70				
B03 Any suppl. requirements	ASME-III; 2010+ADDENDA-2011A/ASTM-A516:10				

C10-C29 Tensile test

B14 Item No.	B07.2 Heat No.	B05 Rol. plate/ Test No.	Reference (heat) treatment	C01 C02 C03 C10 C11	C12	C13	A % LO=2IN	C14-C15
				C01 C02 C03 C10 C11	RM			
01	389335	179013		K1 QV RT 53,2	76,0		39	
01	389336	179009		K1 QV RT 52,6	75,7		39	
01	389336	179010		K1 QV RT 53,4	76,3		39	
01	389337	179012		K1 QV RT 52,1	75,8		39	
01	389722	179016		K1 QV RT 59,2	82,2		37	
02	389336	179242		K1 QV RT 53,9	76,1		38	
02	389336	179244		K1 QV RT 51,9	75,0		39	
02	389337	184170		K1 QV RT 51,5	74,8		39	
02	389722	179243		K1 QV RT 56,0	81,3		36	
02	389722	179245		K1 QV RT 57,7	81,8		36	
03	389335	179215		K1 QV RT 51,3	73,8		39	
03	389335	182283		K1 QV RT 52,5	76,3		38	
03	389336	179214		K1 QV RT 53,9	75,4		39	
03	389336	182284		K1 QV RT 51,6	74,7		39	
03	389337	183157		K1 QV RT 50,9	73,8		38	
03	389337	183158		K1 QV RT 52,5	74,1		39	
04	389334	179233		K1 QV RT 51,6	74,5		37	
04	389336	179238		K1 QV RT 51,3	75,3		39	
05	389335	182292		K1 QV RT 51,0	75,8		37	
05	389336	182290		K1 QV RT 49,7	74,2		35	
06	389335	182295		K1 QV RT 50,5	74,4		38	

A04	20170202Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	 POISSONNET Test House Manager		Dillinger France Port 3032 3032 rue du Conte Jean - CS 56317 F-59379 Dunkerque Cedex 1 - FRANCE Service Qualité Essais Date 17.01.14 LM 2
TFK Manufacturer's mark				

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004		A10 Advice of dispatch No./ Date of dispatch		A08/ Manufacturer's order/ A03 Certificate No.		Sheet	
INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013		4491439-10.12.13		387775-002		4/...	
MATERIAL TEST REPORT (MTR)				B01 Product			
A05 Established inspecting body		A06 Purchaser		A07.1 No.		A07.2 No.	
DF		Final receiver		NORTH SHORE, HOUSTON		NORTH SHORE, HOUSTON	
B02/ Steel design.		SA516-70/A516-70		A07.1 No.		230599	
B03 Any suppl. requirements		ASME-III-A:2010+ADDENDA-2011A/ASTM-A516:1.0					

C40-C49 Impact test

B14 Item No.	B07.2 Heat No.	B07.1 Rot. plate/ Test No.	B05 Reference	C01 Reference (heat) treatment	C01	C02	C03 Temp. GR.C	C41 Width of test piece	C40 Type of test piece	C44 Testing method	C46 Energy	C45	C42 Individual values AV=FT LBF	C43 Mean value
01	389335	179013		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	134	137
01	389336	179009		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	99	121
01	389336	179010		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	147	135
01	389337	179012		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	137	131
01	389722	179016		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	119	108
02	389336	179242		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	134	129
02	389336	179244		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	146	139
02	389337	184176		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	161	144
02	389722	179243		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	111	100
02	389722	179245		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	83	90
03	389335	179215		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	133	125
03	389335	182283		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	133	127
03	389336	179214		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	134	130
03	389336	182284		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	126	129
03	389337	183157		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	76	59
03	389337	183158		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	146	132
04	389334	179233		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	113	117
04	389336	179238		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	112	115
05	389335	182282		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	119	110
05	389336	182290		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	128	132
06	389335	182295		K1 LV	K1	LV	-50	-50	CHP-V	AV	AV	AV	125	141

A04		2017/02/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.		Dillinger France Port 3032 3032 rue du Comte Jean - CS 56317 F-59379 Dunkerque Cedex 1 - FRANCE Service Qualité-Essais Date 17.01.14	
TFK Manufacturer's mark				POISSONNET Test House Manager	
				LM 2	

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013		A10 Advice of dispatch No./ Date of dispatch 4491439-10.12.13	A08/ Manufacturer's order/ A03 Certificate No. 387775-002	Sheet 5/...												
MATERIAL TEST REPORT (MTR)																
A05 Established inspecting body DF	A06 Purchaser NORTH SHORE, HOUSTON Final receiver NORTH SHORE, HOUSTON	A07.1 No. 230599	B01 Product HEAVY PLATES													
B02/ Steel design. SA516-70/A516-70																
B03 Any suppl. requirements ASME-III:2010+ADDENDA-2011A/ASTM-A516:10																
C70-C99 Chemical composition % - Heat analysis																
B07.2 Heat	C70	C	Si	Mn	P	S	CU	MO	NI	CR	V	NS	TI	B	AL-T	
389334	Y	0,159	0,355	1,43	0,009	0,0004	0,021	0,006	0,025	0,030	0,001	0,016	0,002	0,0002	0,032	
389335	Y	0,164	0,357	1,43	0,008	0,0004	0,021	0,011	0,028	0,033	0,001	0,016	0,002	0,0002	0,045	
389336	Y	0,180	0,356	1,46	0,010	0,0010	0,026	0,009	0,038	0,037	0,001	0,017	0,002	0,0001	0,037	
389337	Y	0,156	0,353	1,44	0,010	0,0008	0,024	0,010	0,037	0,035	0,001	0,015	0,002	0,0002	0,032	
389722	Y	0,207	0,382	1,50	0,010	0,0009	0,016	0,005	0,015	0,035	0,001	0,017	0,001	0,0001	0,034	
C94 Heat analysis Carbon equivalent / Alloying restrictions																
B07.2 Heat		FO-55=	0,08	FO-78=	0,04											
389334		FO-55=	0,09	FO-78=	0,04											
389335		FO-55=	0,11	FO-78=	0,05											
389336		FO-55=	0,11	FO-78=	0,05											
389337		FO-55=	0,07	FO-78=	0,04											
389722																
C95 Further information about ladle treatment																
ITEM NO.: 01-06 FULLY KILLED AND FINE GRAIN TREATED.																
ITEM NO.: 01-06 MELTED IN GERMANY BY -AG DER DILLINGER HUETTENWERKE, DILLINGEN/SAAR-																
C94 Carbon equivalent formula / Alloying restrictions																
FO-55 = CU+MO+NI+CR FO-78 = CR+MO.																
A04	201/202/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.		 POISSONNET Test House Manager Date 17.01.14													
TFK Manufacturers mark		Dillinger France Port 3032 3032 rue du Comte Jean - CS 56317 F-55379 Dunkerque Cedex 1 - FRANCE Service Qualite-Essais														

QM-System: Certification as per ISO 9001

Erklärungen siehe Rückseite/Explications voir au verso (See reverse for explanations (www.dillinger.de/certificate))

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004		A10 Advice of Dispatch No./ Date of dispatch		A08/ Manufacturer's order/ A03 Certificate No.		Sheet	
INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:2013		4491439-10.12.13		387775-002		6	
MATERIAL TEST REPORT (MTR)		A07.1 No. 230559		B01 Product			
A06 Established inspecting body		NORTH SHORE, HOUSTON		HEAVY PLATES			
DF		Final receiver					
B02/ Steel design.		SA516-70/A516-70					
B03 Any suppl. requirements		ASME-III-A:2010+ADDENDA-2011A/ASTM-A516:10					
D01 Marking and identification, surface appearance, shape and dimensional properties ITEM NO.: 01-06 EXAMINATION OF MARKING, SURFACE, SHAPE AND DIMENSIONS: THE RESULTS MEET THE REQUIREMENTS. SURFACE AS PER ASME-SA20/ASTM THICKNESS AS PER NO UNDERTOLERANCE LENGTH AS PER ASTM-A20 WIDTH AS PER CLIENT'S P.O. FLATNESS AS PER 1/2-ASTM-A20							
D02 Non-destructive tests - Ultrasonic testing ITEM NO.: 01-04 UT-SPECIFICATION : ASTM-A578 LEVEL C SUPPLEMENTARY REQUIREMENTS S1 SCANNING PLAN BODY : 100% OF PLATE SURFACE PERSONNEL QUALIFICATION : LEVEL 2 IN ACC. TO EN 473 / ISO 9712 AND SNT-TC-1A THE TEST RESULTS MEET THE REQUIREMENTS OF THE ORDER.							
Z01-Z99 Further information about checking of confirmations ITEM NO.: 01-06 UT-SPECIFICATION : ASTM-A578 LEVEL B SUPPLEMENTARY REQUIREMENTS S1 SCANNING PLAN BODY : 100% OF PLATE SURFACE PERSONNEL QUALIFICATION : LEVEL 2 IN ACC. TO EN 473 / ISO 9712 AND SNT-TC-1A THE TEST RESULTS MEET THE REQUIREMENTS OF THE ORDER.							
Z01-Z99 Further information about checking of confirmations ITEM NO.: 01-06 THE MANUFACTURER OPERATES A QUALITY MANAGEMENT SYSTEM THAT HAS UNDERGONE A SPECIFIC ASSESSMENT FOR MATERIALS FOR PRESSURE EQUIPMENT IN ACCORDANCE WITH PED 97/23/EC, ANNEX I, PARA.4.3 AND IS CERTIFIED BY NOTIFIED BODY (SGS-TUEV, REGISTRY NUMBER 1637).							
A04		Z01/202103 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.		Dillinger France Port 3632 3032 rue du Comte Jean - CS 56317 F-59379 Dunkerque Cedex 1 - FRANCE Service Qualité-Essais Date 17.01.14		A01	
TFK		Manufacturer's mark		POISSONNET Test House Manager		IM 2	



FEDERAL STEEL SUPPLY, INC.

THESE TEST REPORTS APPLY TO:

YOUR P.O. # 450165059
7-083185 1811

AMERICAN STEEL PIPE (ASP)
A division of American Cast Iron Pipe Co.,
1501 31st Avenue North, Birmingham, AL 35207
QUALIFICATION REPORT OF SHIPMENT

DATE: 10/SEP/2014

Customer Order Number
151956

ASP Order Number
S111318

SPECIAL NOTES

NDT tested using an Ultrasonic test method calibrated ID & OD N-10 NOTCHES.
Hydrostatic test duration 10 seconds. Max allowable C.E. PCM .25.
Minimum weld seam anneal temperature 1500 degrees F for all pipe.
Charpy acceptance criteria Min. Energy 15/Heat. Min. shear area N/A.

SHIPMENT DESCRIPTION										SPECIFICATIONS				GRADE			
LINE	SIZE	WALL	SHIP. NO	1	13												
3	24.00	.375	HPW API LINE PIPE							API 5L, PSL 2				X70M			

All tests are from the body of the pipe in the transverse direction unless otherwise noted.
Standard flat tensile gage length 1-1/2" x 2". Pipe body test location: Tensile T180; CVN T90.

HEAT	C	MN	P	S	CB	SI	TI	CU	NI	MO	CR	V	AL	B	N	C.E.	Pipe
448096																	Coil
LINE 3																	
H=	0.950	1.470	0.009	0.003	0.084	0.170	0.016	0.020	0.010	0.010	0.030	0.002	0.036	.0001	.0048	0.133	11/20
P=	0.046	1.421	0.012	0.006	0.095	0.168	0.015	0.016	0.009	0.002	0.028	0.002	0.036	.0000	.0000	0.123	0082
P=	0.044	1.421	0.010	0.007	0.096	0.168	0.015	0.015	0.009	0.001	0.027	0.002	0.035	.0000	.0000	0.123	0080
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.0000	.0049	0.000	0080
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.0000	.0048	0.000	0082
P=	0.046	1.438	0.009	0.005	0.102	0.168	0.015	0.016	0.007	0.001	0.028	0.002	0.035	.0000	.0000	0.126	0015
P=	0.041	1.417	0.009	0.005	0.099	0.169	0.015	0.016	0.009	0.001	0.028	0.002	0.035	.0000	.0000	0.120	0015
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.0000	.0046	0.000	0015
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.0000	.0047	0.000	0015
M=WT	89.6	ksi	PT	95.0	ksi	yield	81.1	ksi	SEL	33.0	VEN	233	Hydro:	1980	Psi	Y/T=	.85 RUN: 31-4 0015

Attachments

Issue No.: 7

PAGE 1
Continued

Form Date: 6/01/2013

QD-AW3F055

QUALITY CONTROL RECORD
APPROVED
OCT 21 2014
BY: MARLA TORRES
SPX



DATE: 9/10/14
ASP Order Number
S111318

Customer Order Number
151956

HEAT	C	MN	P	S	CB	SI	TI	CU	NI	MO	CR	V	AL	B	N	C.E.	Pipe Coil
448097 LINE 3 MFG: Arcelor-Mittal Steel (I.H. West)																	
H=	0.050	1.470	0.008	0.003	0.087	0.170	0.016	0.020	0.010	0.010	0.030	0.002	0.033	0.001	0.044	0.133	6/11
P=	0.043	1.412	0.012	0.007	0.099	0.160	0.015	0.020	0.009	0.001	0.030	0.003	0.034	0.000	0.000	0.122	0011
P=	0.047	1.442	0.009	0.006	0.106	0.164	0.016	0.020	0.009	0.001	0.030	0.002	0.033	0.000	0.000	0.127	0012
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0011
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0012
M=	WT	90.8	ksi	PT	99.4	ksi	Yield	81.0	ksi	VEL	32.5	VEN	238	Hydro:	1980	Psi	Y/T= .81 RUN: 31-4 0011
448098 LINE 3 MFG: Arcelor-Mittal Steel (I.H. West)																	
H=	0.050	1.470	0.006	0.002	0.086	0.200	0.017	0.020	0.010	0.010	0.030	0.002	0.040	0.001	0.051	0.134	7/10
P=	0.045	1.433	0.009	0.006	0.097	0.186	0.016	0.020	0.010	0.002	0.028	0.002	0.038	0.000	0.000	0.126	0001
P=	0.039	1.420	0.007	0.005	0.093	0.186	0.015	0.020	0.010	0.002	0.026	0.002	0.038	0.000	0.000	0.119	0004
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0001
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0004
M=	WT	89.0	ksi	PT	96.1	ksi	Yield	81.4	ksi	VEL	33.0	VEN	231	Hydro:	1980	Psi	Y/T= .85 RUN: 31-4 0001
448099 LINE 3 MFG: Arcelor-Mittal Steel (I.H. West)																	
H=	0.050	1.480	0.007	0.002	0.086	0.180	0.016	0.020	0.010	0.010	0.030	0.002	0.036	0.001	0.042	0.134	6/11
P=	0.043	1.415	0.008	0.005	0.097	0.174	0.014	0.020	0.009	0.002	0.031	0.002	0.035	0.000	0.000	0.123	0007
P=	0.045	1.418	0.008	0.005	0.099	0.173	0.014	0.020	0.009	0.002	0.031	0.002	0.034	0.000	0.000	0.125	0008
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0007
P=	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0008
M=	WT	89.1	ksi	PT	96.4	ksi	Yield	78.5	ksi	VEL	32.5	VEN	228	Hydro:	1980	Psi	Y/T= .81 RUN: 31-4 0007

Attachments

PAGE 2
Continued

Issue No.: 7

Form Date: 6/01/2013

QD-AW3F055



Charpy "V" Notch Tests

DATE: 9/10/14
 ASP Order Number
 S111318

Customer Order Number
 151956

HEAT NO.	SIZE	TEMP	Energy (FT*LB)	AVG	Fracture Appearance (% Shear Area)	AVG	Line #
448096	.750	32	107	99	100	100	3
448097	.750	32	89	80	100	100	3
448098	.750	32	114	112	100	100	3
448099	.750	32	105	108	100	100	3
				ALL HEAT AVERAGE =			
				100			

Attachments

Issue No.: 7

PAGE 3
 Continued

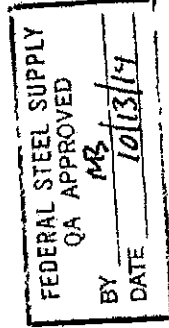
Form Date: 6/01/2013

QD-AM3F055



DATE: 9/10/14
ASP Order Number
S111318

Customer Order Number
151956



STEEL SUPPLIER / MFG
Arcelor-Mittal Steel (I.H. West)

SUPPLIER ADDRESS
3210 Watling St. / East Chicago, IN 46312

Legend Analyses:

A-Z - Additional Testing R - Retest
H - Heat Analysis L - Longitudinal
P - Product Analysis T - Transitional
M - Mechanical Properties W - Weld Line

Hydrostatic Test: OK
Flattening Test: OK

EDITION REFERENCE 3: API 5L 43RD EDITION 10/4/2004
EDITION REFERENCE 4: API 5L 44TH EDITION 10/1/2008
EDITION REFERENCE 5: API 5L 45TH EDITION 7/1/2013
EDITION REFERENCE A: ASTM/ASME ANNUAL BOOK OF STANDARDS SECT.1, VOL 01.01

Coils used for this order were melted and manufactured in the USA.

We hereby certify that the above figures are correct as contained in the records of this company, and that the pipe were manufactured, tested, and inspected in compliance with the latest edition of the applicable specification at American Steel Pipe (ASP) located at 1501 31st Avenue North, Birmingham, AL 35207 (USA).

James B. Baird

James B. Baird
Manager of Quality Assurance - Steel Pipe

PAGE 4

End of Report
Form Date: 6/01/2013

QD-AW3F055

Issue No.: 7



P.O. Box 802404 ♦ Houston, TX 77280-2404 ♦ Telephone (713) 460-3655 ♦ FAX (713) 460-3695

Report Date: 10/03/14
Report No: 692330,00
Rev.: A
Cust Acct: FED006

To: Federal Steel Supply Inc.
P O Box 840
Chesterfield, MO 63006

Ordered By: Ben Levinson PO#: 28239
Material: 6L-X70 24"OD X .375"Wall X 6"LG Test Po
ID/Heat: 448096 WO:143456
Job Info:

Charpy Test Results				
No.	Temp	Location	Foot-Pounds	% Shear
1	-50°F	TCVN	70-80	100-100-100
				Mils Lat Exp
				64-55-69

Unless otherwise stated, Charpy impact specimens are V-notch 10 x 10 mm.

Notes:

Size: .295" x .394"

Document

Reviewed By:

Veronica Ramirez
Veronica Ramirez
Documentation Specialist

Our reports are for the exclusive use of our customer and our name may be used only with prior written approval. Our reports apply only to the sample tested or inspected and do not necessarily represent the quality of other apparently similar or identical materials. All test specimens and testing conforms to ASTM A-370 requirements unless otherwise stated. This test report shall not be reproduced, except in full, without the written approval of Accu-Test Labs LLP.

Page No: 1

This report contains 1 page(s)

CERTIFICATE OF TEST



Page 01 of 03

Certification Date
26-SEP-2014**CUSTOMER ORDER NUMBER**

4501043978

EARLE M. JORGENSEN COMPANY

6201 LUMBERDALE

HOUSTON TX 77092

Invoice Number

S293141

CUSTOMER PART NUMBER

7-236457 (42)

SOLD TO: SPX PROCESS EQUIPMENT
SPX SHARED SERVICES HOUSTON A/P
13515 BALLANTYNE CORPORATE PLACE
CHARLOTTE NC 28277

SHIP TO:

SPX PROCESS EQUIPMENT

8800 WESTPLAIN DR
HOUSTON TX 77041

Description: 4140 HR Q&T BAR - 207/237 BHN (22 RC MAX)

2-3/4 RD S/C 3'1.1875" (37.19")

Line Total: 1377.9515 LB

HEAT: 172553

ITEM: 548132

Specifications:

ASTM A322 07

NACE MR-01-75

ASTM E709 08

SATM E45 10E1

STM A304 05E2

STM A751 01

ASTM E381 06

ASTM E10 07

ASTM A255 10

ASTM E112 10

ASTM A29/A29M 11

ASTM A370 11

ASTM A388/A388M 11

MIC 2016 12

MIC 2016 ADD 30 01

API 6A 20ED 13

NACE MR0175

ISO 15156-1 09

ISO 15156-2 09

EN 10204 3.1 04

CHEMICAL ANALYSIS

C	MN	SI	P	S	CR	NI	MO
0.41	0.89	0.30	0.007	0.003	1.03	0.20	0.235
V	CU	AL	H				
0.005	0.12	0.048	0.0001				

RCPT: R411307

VENDOR: GERDAU

COUNTRY OF ORIGIN : SPAIN

MECHANICAL PROPERTIES

DESCRIPTION	YLD STR PSI	ULT TEN PSI	%ELONG IN 02 IN	%RED IN AREA	HARDNESS BHN
	86588.0	110312.0	25.0	64.9	229

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

Material did not come in contact with mercury while in our possession.

MICHAEL BOSCH

MANAGER, QUALITY ASSURANCE



CERTIFICATE OF TEST

Page 02 of 03

Certification Date
26-SEP-2014

CUSTOMER ORDER NUMBER

4501043978

EARLE M. JORGENSEN COMPANY

6201 LUMBERDALE
HOUSTON TX 77092

Invoice Number

S293141

CUSTOMER PART NUMBER

7-236457

SOLD TO: SPX PROCESS EQUIPMENT
SPX SHARED SERVICES HOUSTON A/P
13515 BALLANTYNE CORPORATE PLACE
CHARLOTTE NC 28277

SHIP TO:

SPX PROCESS EQUIPMENT

8800 WESTPLAIN DR
HOUSTON TX 77041

Description: 4140 HR Q&T BAR - 207/237 BHN (22 RC MAX)
2-3/4 RD S/C 3'1.1875" (37.19") Line Total: 1377.9515 LB

HEAT: 172553 ITEM: 548132

END-QUENCH HARDENABILITY (JOMINY - RC)

1	2	3	4	5	6	8	10	12	14	16	20	24	28	32
57	57	57	56	55	55	54	52	50	49	46	45	41	41	41

GRAIN SIZE :7 -

IMPACT TEST		UOM ft-lbs				% LAT		DESCRIPTION
TYPE	TEMP	ORNT	SMPL#1	#2	#3	AVG	SHEAR EXPN	
CHARPY	-75 F	LONG	47.0	50.0	52.0	49.7		10mm x 10mm

CLEANLINESS

	A		B		C		D	
	THIN MAX	THICK MAX	THIN MAX	THICK MAX	THIN MAX	THICK MAX	THIN MAX	THICK MAX
e45	2.0	1.0	1.0	0.0	0.0	0.0	0.5	0.5

STRAND CAST VACUUM DEGASSED
MATERIAL IS FREE FROM MERCURY CONTAMINATION
NO WELD REPAIR PERFORMED ON MATERIAL
ULTRASONIC: YES
THERMAL TREATMENT: OK
MACRO: OK
MICRO1: OK

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

Material did not come in contact with mercury while in our possession.

MICHAEL BOSCH

MANAGER, QUALITY ASSURANCE

CERTIFICATE OF TEST



Page 03 of 03

Certification Date
26-SEP-2014

CUSTOMER ORDER NUMBER

4501043978

EARLE M. JORGENSEN COMPANY

6201 LUMBERDALE

HOUSTON TX 77092

Invoice Number

S293141

CUSTOMER PART NUMBER

7-236457

SOLD TO: SPX PROCESS EQUIPMENT
SPX SHARED SERVICES HOUSTON A/P
13515 BALLANTYNE CORPORATE PLACE
CHARLOTTE NC 28277

SHIP TO:

SPX PROCESS EQUIPMENT

8800 WESTPLAIN DR
HOUSTON TX 77041

Description: 4140 HR Q&T BAR - 207/237 BHN (22 RC MAX)

2-3/4 RD S/C 3'1.1875" (37.19")

Line Total: 1377.9515 LB

HEAT: 172553

ITEM: 548132

COMMENTS

red. ratio 8,7

tensile specimen size .500"

melt efvd

heat treatment:

austenitizing 1563 deg f time 180 minutes

cooling water 76/85 deg f. tempering 1310 deg f time 360 minutes

cooling air. stress releived 1211 deg f time 6 hours.

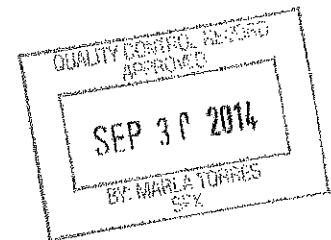
free from radioactive contamination

lateral expansion 0.92/0.93/0.95 mm

brittle fracture: 60/60/60%

ams mil h 6875, ams mil-std 1684, ams 2750, api 6a annex "p"

"test piece is prolongation of bar"



The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

Material did not come in contact with mercury while in our possession.

MICHAEL BOSCH

MANAGER, QUALITY ASSURANCE

MILL TEST CERTIFICATE

ISO 9001 - ISO/TS 16949



Product Made in Spain

CUSTOMER: MAGELLAN CORPORATION	WORKS REFERENCE: 1710682
REFERENCE: 209477	SALES ORDER: 268070-6
PRODUCT NR:	HEAT NUMBER: 172553
	ROLLED: 28.02.2014
	MASTER REFERENCE: 187248

REQUIRED PRODUCT			
AISI 4140 ROUND BARS AS ROLLED Q+T+STRESS RELIEVED 2.75" ASTM A-29 (") 20-23'			
RANDOM			
EXPEDITION	DELIVERY: 0080464270	WEIGHT (KG): 4.872	BUNDLES: 2
			UNITS: 24

MADE ACCORDING TO			
ASTM E709 - 2008 ; ASTM A322 07 2007 ; ASTM E45 - 2010E1 ; ASTM A304 - 2005E2			
ASTM A751-01 - 2001 ; ASTM E381 2001 R2006 ; ASTM E10 .07A .2007			
ASTM A255 - . . . 2010 ; ASTM E112 - . . . 2010 ; ASTM A29-A29M - . . . 2011			
ASTM A370 11A 15.11.2011 ; AISI BAR STEEL - .09.1996 ; ASTM A368-A368M - . . . 2011			
MAGELLAN MIC2016 1 30.01.2012 ; MAGELLAN MIC2016 AD.30 25/5/01 - 25.05.2001			
API SPEC 6A 20*ED1+ER1&2+AD12.3 . . . 03.2013			
NACE MR0175/ISO 15156-1 2*EDICION 15.10.2009			
NACE MR0175/ISO 15156-2 2*EDICION 15.10.2009 ; EN 10204:2004 3.1			

CHEMICAL ANALYSIS OF HEAT									U: % HEAT NUMBER:172553		
	C	Mn	Si	P	S	Cr	Ni	Mo	V	Cu	Al
Min.	0,400	0,750	0,150			0,800		0,150			0,020
Max.	0,430	1,000	0,350	0,025	0,025	1,100	0,250	0,250	0,050	0,350	0,050
Cor.	0,410	0,890	0,300	0,007	0,003	1,030	0,200	0,235	0,005	0,120	0,048
H											
Min.											
Max.	0,00030										
Cor.	0,00016										
0.000<=P+S<=0.040;0.010 D.I.ASTMA255("):6.452											

JOMINY HARDENABILITY												HARDNESS V, HRC		NORM. TEMP.: 1.600 -10/10 °F		QUENCHING TEMP.: 1.550 -10/10 °F	
	1/16"	2/16"	3/16"	4/16"	5/16"	6/16"	8/16"	10/16"	12/16"	14/16"	15/16"						
Min.	53,0	53,0	52,0	51,0	51,0	50,0	47,0	42,0	39,0	37,0	35,0						
Max.	60,0	60,0	60,0	59,0	59,0	58,0	57,0	56,0	55,0	54,0	53,0						
Cor.	57,5	57,5	57,0	56,5	55,5	55,5	54,5	52,5	50,0	49,0	46,5						
	20/16"	24/16"	28/16"	32/16"													
Min.	33,0	32,0	31,0	30,0													
Max.	51,0	48,0	46,0	44,0													
Cor.	45,0	41,5	41,0	41,0													
JOMINY standard (ASTM A255-... 2010)																	

INCLUSIONS (MICROINCLUSIONS)											
Standard (ASTM E45-2010E1) ; Type/method (A) ; A(t):2 ; A(h):1 ; B(t):1 ; B(h):0 ; C(t):0 ; C(h):0											
E(t):0,5 ; D(h):0,5											

MECHANICAL PROPERTIES AS SUPPLIED (CONDITIONS)											
Specimen Test location: At 1/2 radius ; Temperature of: (1): Austenitizing 1.550 °F ; Time: (1): 180 Minutes											
Cooling: (1): Water 76/85 °F ; Temperature of: (2): Tempering 1.310 °F ; Time: (2): 360 Minutes											
Cooling: (2): Air ; Temperature of: (3): STRESS RELIEVED 1.211 °F ; Time: (3): 8 hours											
MECHANICAL PROPERTIES AS SUPPLIED (TEST)											
Standard (ASTM A37011A15.11.2011) ; Tensile test specimen direction (Longitudinal): Longitudinal											
Tensile Strength (>= 100.000 PSI): 110.312 PSI											

TECHNOLOGY & QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATION											
APPROVED BY: ALBERTO CUBERO ZABALA						SIGN:					
DATE: 15.05.2014						Page 1 of 2					
REF.: 1002071930000						Analyst: [Signature] [Name]					

7/10/14
548132
170553
Q411307
②

MILL TEST CERTIFICATE

ISO 9001 - ISO/TS 16949



Product Made in Spain

CUSTOMER: MAGELLAN CORPORATION		WORKS REFERENCE: 1710682
REFERENCE: 209477	SALES ORDER: 268070-6	HEAT NUMBER: 172553
PRODUCT NR:	MASTER REFERENCE: 187248	ROLLED: 28.02.2014
Yield Strength(1) (Rp(0,2%) 80.000/95.000 PSI): Rp(0,2%) 86.588 PSI Yield Strength(2) ((0,5%) 80.000/95.000 PSI): (0,5%) 87.913 PSI Yield Strength(3) ((0,02%) PSI): (0,02%) 84.567 PSI ; Elongation (2 " ± 20 %) : 2 " 25 % Reduction of Area (>= 40 %) : 64,9 % ; Standard (API SPEC 6A20*ED.+ER1E2+AD12.3) : 03.2013 Notch impact sample direction (Longitudinal): Longitudinal Notch Impact sample type (CHARPY-V): CHARPY-V ; Notch Impact test Temperature: (-75 °F): -75 °F K(1): 47 Ft.Lb ; K(2): 50 Ft.Lb ; K(3): 52 Ft.Lb ; K (average) (>= 20 Ft.Lb): 49,67 Ft.Lb K (single) (>= 15 Ft.Lb): 47 Ft.Lb ; lateral expansion: 0.92-0.93-0.95 mm Brittle fracture: 60-60-60 % ; Standard (ASTM E10..07A..2007) Surface hardness (207/237 HB): 229-233 231 HB ; Hardness at 1/2 radius (HB): 229-231 231 HB Surface hardness (16/22 HRC): 20 HRC		
ADDITIONAL TESTS Standard (ASTM E112-..2010) ; Grain size: Austenitic 7 ; Standard (ASTM E3812001R2006) macroetching(1): S 1 ; macroetching(2): R 1 ; macroetching(3): C 1 ; radiactivity: FREE		
NON DESTRUCTIVE TESTS Surface defects standard (ASTM E709-2008) ; Internal defects standard (ASTM A388-A388M-..2011) ULTRASONIC INSPECTION 100% : O.K. ; CRACKS CONTROL 100% : O.K. ; ANTIMILKING TEST SPECTROSCOPY 100%: OK		
ADDITIONAL INFORMATION Reduction ratio: 8,7 ; "Bars are free from any harmful magnetism" ; CALCIUM TREATED NO WELD REPAIR PERFORMED ; CONTINUOUS CASTING 185 X 185 mm MADE IN ELECTRIC FURNACE AND VACUUM DEGASSED. ; Free of Magnetism MATERIAL IS FREE OF MERCURY & RADIOACTIVE CONTAMINATION ; "COUNTRY OF MELT AND MANUFACTURE: SPAIN" FURNACE CALIBRATION ACCORDING TO AMS-MIL-H-5875, AMS-MIL-STD-1684, AMS-2750, API A annex "P" Molten steel in the factory of: BASAURI ; " MATERIAL ACCORDING TO : AISI 4140, ASTM A322 and NACE MR0175 ; Ultrasonic Inspection Results ("Satisfactory per ASTM A388") "Steel is free from harmful radioactive contamination"		

TECHNOLOGY & QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATION

APPROVED BY: ALBERTO CUBERO ZABALA

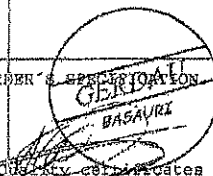
SIGN:

DATE: 15.05.2014

Page 2 of 2

REF.: 11902071930066

Analyst: [Signature]





Metallurgical Chemistry and Testing Laboratory

3204 BROADWAY (77017)
POST OFFICE BOX 282265
HOUSTON, TEXAS 77207-2265
PHONE: (713) 844-7501
FAX: (713) 844-1400
met@an-tech.com

September 29, 2014

Page 1 of 1

North Shore Supply Company
Attn: Junior Johnston
P.O. Box 9940
Houston, TX 77213-0940

P.O. No. 248221
Report No. 14-2473

IDENTIFICATION: 3.25" x 6" x 8", Tag# 080814-22, HT# J7/8115, SL# 1723E869
MATERIAL: SA516-70 N
REFERENCE: S/O 1140101

IMPACT TEST

10mm x 10mm CVN @ -50°F (-46°C)
(Longitudinal)

<u>Foot Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>% Shear</u>
145.0	88	60
138.0	89	60
196.0	95	100

Donald Derrick

Mechanical Testing Supervisor

em

Tests were performed in accordance with the An-Tech Laboratories, Inc. Quality Assurance Manual, 2nd Edition, Revision 2 dated May 28, 2013. The contents for this report are correct and accurate and that all test results and operations performed by An-Tech are in accordance with the material specification and customer requirements. Our letters and reports are for the exclusive use of the client to whom they are addressed. Our reports apply only to the actual sample tested and are not necessarily indicative of the properties of other identical or similar materials.

INSPECTION CERTIFICATE

TATA STEEL UK LIMITED
Park Street
Motherwell, ML1 1PU,
Tel: +44 (0)1698 255100
Fax: +44 (0)1698 255100 Ext. 227

TATA

Customer: **CS1:0058262**

Product: **In accordance with EN10204 3.1**
Product manufactured under a Management System approved to ISO 9001

Material Order No: **690860**

Contract No: **H-PUR1010359 V2**

Contract No: **4/035**

Specification: **ASME SA516-2013/ASTM A516-2010 GRADE 70 (ASME SECT II PART A 2013/SA20)**

STEEL PLATE 30"5" X 8' X 3.250" Plate Weight 14.771Tonne

N Normalised at 4920C for 2 hrs, 16 mins.

ITEM MARK: 150000

L-Longitudinal	T-Transverse	Z-Through Thickness	S-Side Surface	M-Mid Thickness	Q-Quench Thickness	T-Transverse Thickness	AS-As Surface	N-Normalised	SR-Surface Related	SA-Surface Area
Quantity	Ref	Test No.	Test No.	Test No.	Test No.	Test No.	Test No.	Test No.	Test No.	Test No.
1	J7/8112	225F893	44	71	32	0	20F	253	227	255
ANALYSIS %										
C-0.25										
Mn-0.30										
P-0.008										
S-0.005										
Cu-0.02										
Ni-0.01										
Mo-0.002										
Cr-0.002										
Al-0.002										
Si-0.002										
Mg-0.002										
Ca-0.002										
Fe-0.002										

Fully killed fine grained steel
Material not subject to Weld Repair
Heat-treated & manufactured in UK

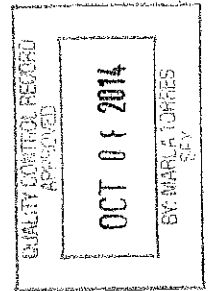
On behalf of Tata Steel UK Limited, the manufacturer,
These results confirm that the material meets and complies
with the requirements of the Product Description.

R. Jones

R.J. Jones, Test (Heat) Manager, Southwark

202

These results confirm that the material meets and complies with the requirements of the Product Description.





Metallurgical Chemistry and Testing Laboratory

3204 BROADWAY (77017)
POST OFFICE BOX 262265
HOUSTON, TEXAS 77207-2265
PHONE: (713) 844-7501
FAX: (713) 644-1400
E-MAIL: info@an-tech.com

August 27, 2014

Page 1 of 1

North Shore Supply Company
Attn: Junior Johnston
P.O. Box 9940
Houston, TX 77213-0940

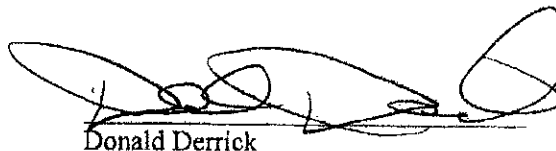
P.O. No. 246535
Report No. 14-2153

IDENTIFICATION: 3.25" x 6" x 8", Tag# 080714-20, HT# J7/8112, SL# 225F893
MATERIAL: SA 516-70 N
REFERENCE: S/O 1133050

IMPACT TEST

10mm x 10mm CVN @ -50°F (-46°C)
(Longitudinal)

<u>Foot Pounds</u>	<u>Lateral Expansion (mils)</u>	<u>% Shear</u>
142.0	90	50
142.0	89	50
108.0	79	40



Donald Derrick
Mechanical Testing Supervisor

em

Tests were performed in accordance with the An-Tech Laboratories, Inc. Quality Assurance Manual, 2nd Edition, Revision 2 dated May 28, 2013. The contents for this report are correct and accurate and that all test results and operations performed by An-Tech are in accordance with the material specification and customer requirements. Our letters and reports are for the exclusive use of the client to whom they are addressed. Our reports apply only to the actual sample tested and are not necessarily indicative of the properties of other identical or similar materials.



Frisa Forjados SA, de C.V.
Valentín G. Rivero No. 127 Los Treviño
C.P. 66350 Tels- 52(8) 153-0321, 153-0302
Fax: 52(8) 336-3560
Sta. Catarina, N.L., México

CERTIFIED COMPANY
ISO 9001: 2008

Material Test Report No.540394

Certificate per: EN 10204:2004 3.1
Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013

Pag. 1/2

Qty	Date	P.O. Number	Part No.	Job Order
10	28/10/2014	4501064247	7-082997	423844
Description ROLLED RING 27.000" X 23.250" X 3.021" .MELTING PRACTICE: EAF LR VD .LINE ITEM: 10				

RAW SR 24"600

HEAT: 8705 (10/10) PCS

CHEMICAL ANALYSIS

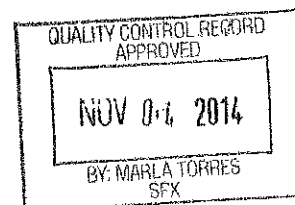
HEAT No.		C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
8705	Ladle	0.20000	1.21000	0.00700	0.00300	0.20000	0.02000	0.05000	0.01300
Supplier		Cu %	V %	Nb %	CrMo %	NiCrMoCuV %	CE %		
TER	Ladle	0.07500	0.00200	0.00100	0.06300	0.16000	0.42100		

Hardness(HBW) PCS

Hardness
141
141

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temp. (°F)	Time at Temp (Hrs)	Cooling Medium	Quench M. Temp. (°F)
10 PCS	440009	Normalized	1652	5.00	Air	
QTC	435057	Normalized	1652	5.00	Air	



WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED
IN FRISA ALL MATERIALS ARE MERCURY FREE

CER F-001-3

Marisol Jiménez
Marisol Jiménez Jimenez

QUALITY ASSURANCE ENGINEER

**Frisa Forjados SA, de C.V.**

Valentín G. Rivero No. 127 Los Treviño
C.P. 66350 Tels- 52(8) 153-0321,153-0302
Fax: 52(8) 336-3560
Sta. Catarina, N.L., México

CERTIFIED COMPANY

ISO 9001: 2008

Material Test Report No.540394

Certificate per: EN 10204:2004 3.1

Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013

Pag. 2/2

Qty	Date	P.O. Number	Part No.	Job Order
10	28/10/2014	4501064247	7-082997	423844
Description ROLLED RING 27.000" X 23.250" X 3.021" .MELTING PRACTICE: EAF LR VD .LINE ITEM: 10				

Heat: 8705

Track ID: 238/026-14

MECHANICAL PROPERTIES**TENSILE TEST**

Orientation	Position	Location	Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R (%)	Temp Tens °F	Post Welding HT		
									Temp °F	Time	Cycle
Long	1/4 T		435057	46200	74700	37	73	77			

Heat: 8705

IMPACT TEST

Orientation	Position	Location	Heat Treat Lot No.	CVN (ft-lb)			Lat Exp. (IN)			Shear (%)		Temp (F)	Post Welding HT		
													T °F	T	C
Long	1/4 T		435057	107	81	99	0.0760	0.0560	0.0640	80	50	60	-51		

Heat: 8705

HARDNESS HBW QTC

Orientation	Position	Location	Heat Treat Lot No.	Point	Hardness	Post Welding HT		
						Temp °F	Time	Cycle
Long	1/4 T		435057		147			
Long	1/4 T		435057		147			

OBSERVATIONS

. FORGING RATIO: 8.4 TO 1
. QTC SIZE (4 X 4 X 12)
. IMPACT TEST: 0.390" X .390" X 2.160" CVN SPECIMEN
. TENSILE TEST: 0.500" DIAMETER SPECIMEN AND 2.0" GAUGE LENGTH
. FURNACE CALIBRATED AND SURVEYED PER API 6A ANNEX M 20th EDITION REQUIREMENTS
. HARDNESS ON TEST SPECIMEN IS REPRESENTED BY TWO VALUES.
. FURNACE TEMPERATURE MONITORING AND RECORDING METHOD: AIR THERMOCOUPLE
. THE SPECIMEN FOR MECHANICALS WERE TAKEN TO: 1/4 T
. CVN TEST SPECIMEN: Long
. TESTING ACCORDING TO ASTM A370 REV.14

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED
IN FRISA ALL MATERIALS ARE MERCURY FREE

CER F-001-3

Marisol Jiménez
Marisol Jiménez Jiménez

QUALITY ASSURANCE ENGINEER

**Frisa Forjados SA, de C.V.**

Valentin G. Rivero No. 127 Los Treviño
C.P. 66360 Tels- 52(8) 153-0321, 153-0302
Fax: 52(8) 338-3560
Sta. Catarina, N.L., México

CERTIFIED COMPANY

ISO 9001: 2008

Material Test Report No.531952

Certificate per: EN 10204:2004 3.1

Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013a

Pag. 1/2

Qty	Date	P.O. Number	Part No.	Job Order
4	13/08/2014	4501014618	7-082997	416617
Description ROLLED RING 27.000" X 23.250" X 3.021" .MELTING PRACTICE: EAF LR VD .LINE ITEM: 30				

RAW SR 24"600

HEAT: MM14102465 (4/4) PCS

CHEMICAL ANALYSIS

HEAT No. MM14102465	Ladle	C % 0.19000	Mn % 1.16000	P % 0.01300	S % 0.02200	Si % 0.18000	Ni % 0.07000	Cr % 0.10000	Mo % 0.02000
Supplier NUC	Ladle	Cu % 0.20000	V % 0.00600	Nb % 0.00400	CrMo % 0.12000	NiCrMoCuV % 0.39600	CE % 0.42653		

Hardness(HBW) PCS

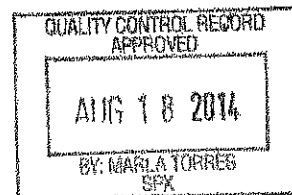
Hardness

147

147

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temp. (°F)	Time at Temp. (hrs)	Cooling Medium	Quench H. Temp. (°F)
4 PCS	433845	Normalized	1652	5.00	Air	
QTC	431338	Normalized	1652	5.00	Air	



WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE

CER-F-01-B

Marisol Jimenez Jimenez

QUALITY ASSURANCE ENGINEER

**Frisa Forjados SA, de C.V.**

Valentín G. Rivero No. 127 Los Treviño
C.P. 66350 Tels- 52(8) 153-0321, 153-0302
Fax: 52(8) 336-3560.
Sta. Catarina, N.L., México

CERTIFIED COMPANY

ISO 9001: 2008

Material Test Report No.531952

Certificate per: EN 10204:2004 3.1

Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013a

Pag. 2/2

Qty	Date	P.O. Number	Part No.	Job Order
4	13/08/2014	4501014618	7-082997	416617
Description ROLLED RING 27.000" X 23.250" X 3.021" .MELTING PRACTICE: EAF LR VD .LINE ITEM: 30				

Heat: MM14102465

Track ID: 192/009-14

MECHANICAL PROPERTIES**TENSILE TEST**

Orientation	Position	Location	Heat Treat Lot No	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Temp Tens (F)	Post Welding HT		
									Temp F	Time	Cycle
Long	1/4 T		431338	47500	76200	.36	68	77			

Heat: MM14102465

IMPACT TEST

Orientation	Position	Location	Heat Treat Lot No	CVN (ft-lb)			Lat Exp (IN)			Shard (F)			Temp (F)	Post Welding HT		
				22	27	31	0.0210	0.0270	0.0260	20	20	20	-51	T F	T	C
Long	1/4 T		431338													

Heat: MM14102465

HARDNESS HBW QTC

Orientation	Position	Location	Heat Treat Lot No	Point	Hardness	Post Welding HT		
						Temp F	Time	Cycle
Long	1/4 T		431338		154			
Long	1/4 T		431338		154			

OBSERVATIONS

. FORGING RATIO: 26.3 TO 1
. QTC SIZE (4 X 4 X 12)
. IMPACT TEST: 0.390" X .390" X 2.160" CVN SPECIMEN
. TENSILE TEST: 0.500" DIAMETER SPECIMEN AND 2.0" GAUGE LENGTH
. FURNACE CALIBRATED AND SURVEYED PER API 6A ANNEX M 20th EDITION REQUIREMENTS
. HARDNESS ON TEST SPECIMEN IS REPRESENTED BY TWO VALUES.
. FURNACE TEMPERATURE MONITORING AND RECORDING METHOD: AIR THERMOCOUPLE
. THE SPECIMEN FOR MECHANICALS WERE TAKEN TO: 1/4 T
. CVN TEST SPECIMEN: Long
. TESTING ACCORDING TO ASTM A370

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED
IN FRISA ALL MATERIALS ARE MERCURY FREE

CER-F-01-B

Mariel Jiménez Jiménez

QUALITY ASSURANCE ENGINEER

**Frisa Forjados SA, de C.V.**

Valentín G. Rivero No. 127 Los Treviño
C.P. 86350 Tels- 52(8) 153-0321, 153-0302
Fax: 52(8) 336-3560
Sta. Catarina, N.L., México

CERTIFIED COMPANY

ISO 9001: 2008

Material Test Report No.536286

Certificate per: EN 10204:2004 3.1

Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013a

Pag. 1/2

Qty	Date	P.O. Number	Part No.	Job Order
10	22/09/2014	4501043802	7-082997	421172
Description	ROLLED RING 27.000" X 23.250" X 3.021" .MELTING PRACTICE: EAF LR VD .LINE ITEM: 10			

RAW SR 24" 600

HEAT: MM14103021 (10/10) PCS

CHEMICAL ANALYSIS

HEAT No.	Ladle	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
MM14103021		0.19000	1.14000	0.01200	0.01800	0.25000	0.08000	0.11000	0.03000
Supplier		Cu %	V %	Nb %	CrMo %	NI CrMo Cu V %	CE %		
NUC	Ladle	0.22000	0.00800	0.00000	0.14000	0.44800	0.42960		

Hardness(HBW) PCS

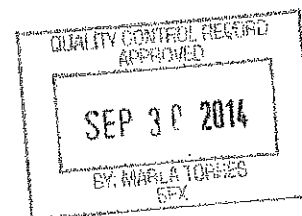
Hardness

164

164

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temp. (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
10 PCS	437144	Normalized	1652	6.00	Air	
QTC	433705	Normalized	1652	5.00	Air	



WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE

CER-F-01-B

Marisol Jimenez Jimenez

QUALITY ASSURANCE ENGINEER

**Frisa Forjados SA, de C.V.**

Valentin G. Rivero No. 127 Los Treviño
C.P. 66350 Tels- 52(8) 153-9321, 153-0302
Fax: 52(8) 336-3560
Sta. Catarina, N.L., México

CERTIFIED COMPANY

ISO 9001: 2008

Material Test Report No.536286

Certificate per: EN 10204:2004 3.1

Client: SPX CONTROL FLOW

Spec: SA-350/SA-350M LF2 CL1 Ed. 2013a

Pag. 2/2

Qty	Date	P.O. Number	Part No.	Job Order
10	22/09/2014	4501043802	7-082997	421172
Description ROLLED RING 27.000" X 23.250" X 3.021" MELTING PRACTICE: EAF LR VD LINE ITEM: 10				

Heat: MM14103021

Track ID: 221/004-14

MECHANICAL PROPERTIES**TENSILE TEST**

Orientation	Position	Location	Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R.(%)	Temp Tens °F	Post Welding HT		
									Temp °F	Time	Cycle
Long	1/4 T		433705	46300	75100	37	68	77			

Heat: MM14103021

IMPACT TEST

Orientation	Position	Location	Heat Treat Lot No.	CVN (ft-lb)			Lat Exp (IN)			Shear (%)			Temp (F)	Post Welding HT		
														T °F	T	C
Long	1/4 T		433705	34	23	48	0.0280	0.0200	0.0400	30	20	40	-51			

Heat: MM14103021

HARDNESS HBW QTC

Orientation	Position	Location	Heat Treat Lot No.	Point	Hardness	Post Welding HT		
						Temp °F	Time	Cycle
Long	1/4 T		433705		152			
Long	1/4 T		433705		151			

OBSERVATIONS

FORGING RATIO: 3:8 TO 1
QTC SIZE (4 X 4 X 12)
IMPACT TEST: 0.390" X .390" X 2.160" CVN SPECIMEN
TENSILE TEST: 0.500" DIAMETER SPECIMEN AND 2.0" GAUGE LENGTH
FURNACE CALIBRATED AND SURVEYED PER API-6A ANNEX M 20th EDITION REQUIREMENTS
HARDNESS ON TEST SPECIMEN IS REPRESENTED BY TWO VALUES.
FURNACE TEMPERATURE MONITORING AND RECORDING METHOD: AIR THERMOCOUPLE
THE SPECIMEN FOR MECHANICALS WERE TAKEN TO: 1/4 T
CVN TEST SPECIMEN: Long
TESTING ACCORDING TO ASTM A370

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY AND MEET THE PURCHASE ORDER / SPECIFICATIONS REQUIREMENTS.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE

CER-F-01-B

Marisol Jimenez Jimenez

Marisol Jimenez Jimenez

QUALITY ASSURANCE ENGINEER

SPX Flow Technology

PO Box 40421
Houston, TX 77240
Phone: (281) 469-0550
Fax: (281) 894-1332
www.spx.com

CERTIFICATE OF BOLTING

Date: NOV 26 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90702 - 03089 - 14

SPX Flow Technology
Sales Order Number: 1888515

Item Number: 10

SPX Flow Technology certifies that the studs and nuts used in the construction of the above referenced are:

Studs: ASME SA320 GR. L7

Nuts: ASME SA194 GR. 7

<u>Part Number</u>	<u>Description</u>	<u>Heat Number</u>
7-133609	1.25 X 5.75 STUD	144247
7-236456	1.25 X 7.75 STUD	144247
7-232381	1.25 X 5.25 STUD	144247
7-132128	1.25 NUT	3100118
7-232350	1.0 X 4.5 STUD	E21105599XX
7-138908	1.0 NUT	C12834

SPX Flow Technology



Douglas Hinze
Quality Control Supervisor

DH/dw



ME
12-12-14

41042

Material Test Report

Customer

SPX Process Equip.
19191 Hempstead Highway
Houston, TX 77065
Fax
281-897-2987



USA Fastener Group, Inc.
1300 Gazin St., Houston, Texas 77020
P: (866)546-5872 | F: (713)641-4655
sales@usafgrp.com

Specification	Year	Description	PO Number	Lot Number
A320	2011a	Threaded Rod	4501043795	86652

Heat Number	Grade	Size	TPI	Length	Finish
144247	L7 / B7	1.1/4	8	12FT	Plain

C	SI	S	P	Mn	Mo	Cr	Ni	Al	V	Fe	Ti	Cu
0.41	0.32	0.019	0.009	0.9	0.19	0.96	0.08	0.003	0.006	0	0.002	0.26

Yield	Scale	Tensile	Scale
124	0	139	0
	ksi		ksi

Elong %	R.A %
19.3	0
	56
	0

Hardness	Scale
29	0
	HRC

Charpy Set 1	Scale	Temp	Macro Etch	Wedge Tensile	Proof Load
22 22 26	Ft Lbs	-150 °F	R C S		
Charpy Set 2			1 1 1		
0 0 0					

Quenched	Tempered	Stress Relieved
@ 0 ° in	@ 1332 ° F	@ 0 °

Remarks:

Nb=.036; Sn=.010; N=.0133

Conforms to ASTM A193-B7/ASME SA193-B7 Rev.2012b

Memo:

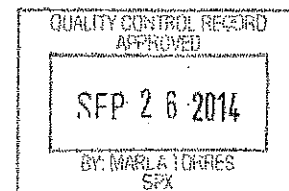
1 1/4-8 X 5 1/4

1 1/4-8 X 5 3/4 - 7.133609

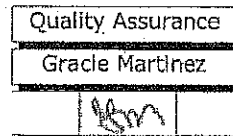
1 1/4-8 X 7 3/4

AT STUD A320-L7

All material meets both ASME/ASTM requirements where applicable.
EN10204 3.1



The above described product was manufactured, sampled, tested and inspected in accordance with the required specification, including any supplementary requirements or other requirements designated in the purchase order or contract and were found to meet those requirements.



41041

Material Test Report

Customer

SPX Process Equip.
19191 Hempstead Highway
Houston, TX 77065
Fax
281-897-2987



USA Fastener Group, Inc.
1300 Gazin St., Houston, Texas 77020
P: (866)546-5872 | F: (713)641-4655
sales@usafgrp.com

Specification	Year	Description	PO Number	Lot Number
A320	2011a	Threaded Rod	4501043795	86652

Heat Number	Grade	Size	TPI	Length	Finish
144247	L7 / B7	1.1/4	8	12FT	Plain

C	Si	S	P	Mn	Mo	Cr	Ni	Al	V	Fe	Ti	Cu
0.41	0.32	0.019	0.009	0.9	0.19	0.96	0.08	0.003	0.006	0	0.002	0.26

Yield	Scale	Tensile	Scale
124	0	139	0
ksi	ksi	ksi	ksi

Elong %	R.A %
19.3	0
56	0

Hardness	Scale
29	0
HRC	HRC

Charpy Set 1	Scale	Temp	Macro Etch	Wedge Tensile	Proof Load
22	22	26	Ft Lbs	-150 °F	R C S
0	0	0	1	1	1

Quenched	Tempered	Stress Relieved
@ 0 ° in	@ 1332 ° F	@ 0 °

Remarks:

Nb=.036; Sn=.010; N=.0133

Conforms to ASTM A193-B7/ASME SA193-B7 Rev.2012b

Memo:

1 1/4-8 X 5 1/4

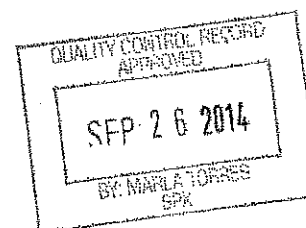
1 1/4-8 X 5 3/4

1 1/4-8 X 7 3/4 — 7-236456

AT STUD A320-L7

All material meets both ASME/ASTM requirements where applicable.

EN10204 3.1



The above described product was manufactured, sampled, tested and inspected in accordance with the required specification, including any supplementary requirements or other requirements designated in the purchase order or contract and were found to meet those requirements.

Quality Assurance
Gracie Martinez
<i>Gracie</i>

41040

Material Test Report

Customer

SPX Process Equip.
19191 Hempstead Highway
Houston, TX 77065
Fax
281-897-2987



USA Fastener Group, Inc.
1300 Gazlin St., Houston, Texas 77020
P: (866)546-5872 | F: (713)641-4655
sales@usafgrp.com

Specification	Year	Description	PO Number	Lot Number
A320	2011a	Threaded Rod	4501043795	86652

Heat Number	Grade	Size	TPI	Length	Finish
144247	L7 / B7	1.1/4	8	12FT	Plain

C	Si	S	P	Mn	Mo	Cr	Ni	Al	V	Fe	Ti	Cu
0.41	0.32	0.019	0.009	0.9	0.19	0.96	0.08	0.003	0.006	0	0.002	0.26

Yield	Scale	Tensile	Scale
124	0	139	0
ksi	ksi	ksi	ksi

Elong %	R.A. %
19.3	0
56	0

Hardness	Scale
29	0
HRC	HRC

Charpy Set 1	Scale	Temp	Macro Etch	Wedge Tensile	Proof Load
22	22	26	Ft Lbs	-150 °F	R C S
1	1	1			
0	0	0			

Quenched	Tempered	Stress Relieved
@ 0 ° In	@ 1332 ° F	@ 0 °

Remarks:

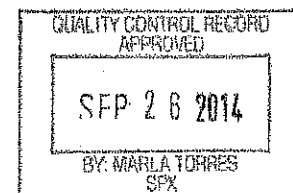
Nb=.036; Sn=.010; N=.0133

Conforms to ASTM A193-B7/ASME SA193-B7 Rev.2012b

Memo:

1 1/4-8 X 5 1/4 — 7-232381
1 1/4-8 X 5 3/4
1 1/4-8 X 7 3/4
AT STUD A320-L7

All material meets both ASME/ASTM requirements where applicable.
EN10204 3.1



The above described product was manufactured, sampled, tested and inspected in accordance with the required specification, including any supplementary requirements or other requirements designated in the purchase order or contract and were found to meet those requirements.





ALLOY & STAINLESS FASTENERS

11625 CHARLES ST
HOUSTON, TX 77041
ADMIN 713-929-0300
SALES 713-466-3031
SALES 713-466-9591 FAX

* C E R T I F I C A T E *
* O F T E S T *

To: FASTENAL COMPANY
8525 JACKRABBIT ROAD
HOUSTON, TX 77095

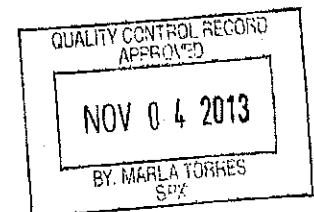
Customer P/O # HZTX4290

Our Order # 587896

4500868123
7-132128 (100)

Line	Qty	UOM	Description	LOT		
2	200	EA	1 1/4-8 HEAVY HEX NUT ASTM A194 GR.7 ASTM SPEC DATE: 08a TEMPERING TEMP: 1150 DEG F CHARPY IMPACTS -150 DEG F = 21/23/22 FT.LBF SAMPLE HARDNESS 1100 DEG F FOR 24 HRS = 99 HRB	97324		
				CARBON	MANGANESE	
				.39	0.83	
Heat No. 3100118		HEAT CODE	MACRO ETCH S1-R1-C2	PHOSPHORUS .011	SULFUR .009	SILICON .24
NUMBER OF TEST 5		HARDNESS (HB) 294	PROOF LOAD lbf NA	CHROMIUM 0.97	MOLY. .18	

We certify that the material or the fasteners, or both, were manufactured, sampled, tested, and inspected in accordance with the specification listed above and any supplementary requirements or other requirements designated in the purchase/sales order and was found to meet those requirements.

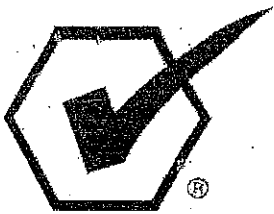


Date: 10/29/13

ALLOY & STAINLESS FASTENERS

By: Kimberley R. Cain

Kimberley R. Cain
Certification Custodian



ALLOY & STAINLESS FASTENERS

11625 CHARLES ST
HOUSTON, TX 77041
ADMIN 713-929-0300
SALES 713-466-3031
SALES 713-466-9591 FAX

* C E R T I F I C A T E *
* O F T E S T *

To: FASTENAL COMPANY (TXH11)
8525 JACKRABBIT ROAD
HOUSTON, TX 77095

Customer P/O # HZTX4920

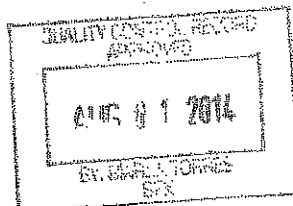
Our Order # 617230

4501009307
7-132128 (100)

Line	Qty	UOM	Description	LOT		
1	62	EA	1 1/4-8 HEAVY HEX NUT ASTM A194 GR.7 ASTM SPEC DATE: 08a TEMPERING TEMP: 1150 DEG F CHARPY IMPACTS -150 DEG F = 21/23/22 FT.LBF SAMPLE HARDNESS 1100 DEG F FOR 24 HRS = 99 HRB	97324		
				CARBON .39	MANGANESE 0.83	
Heat No. 3100118		HEAT CODE	MACRO ETCH S1-R1-C2	PHOSPHORUS .011	SULFUR .009	SILICON .24
NUMBER OF TEST 5		HARDNESS (HB) 294	PROOF LOAD lbf NA	CHROMIUM 0.97	MOLY. .18	

We certify that the material or the fasteners, or both, were manufactured, sampled, tested, and inspected in accordance with the specification listed above and any supplementary requirements or other requirements designated in the purchase/sales order and was found to meet those requirements.

Date: 07/29/14



ALLOY & STAINLESS FASTENERS
By: Kimberley Cain

Kimberley R. Cain
Certification Custodian

Certified Material Test Report to BS EN 10204-2004 3.1

FOR ASTM A320-09b L7 STUDS& ASME SA320

DATE: OCT. 26, 2012

FACTORY: ZHEJIANG MORGAN BROTHER TECHNOLOGY CO., LTD

ADD: NO. 283, Xitang Road, Hangzhou Bay Bridge New

MFR LOT NO. 2W1205788

District, Haiyan, Zhejiang, China

CUSTOMER:

QTY SHIPPED: 780PCS

FASTENAL
4501013155
7-238350 (70)

PO NUMBER: 120139317

SAMPLING PLAN PER ASTM A320-09b L7 STUDS& ASME SA320

SIZE & DESCRIPTION : 1"-8X4-1/4" PL

SAMPLING QTY: 23PCS

PART NO: 0187183

HEAD MARKS: HY L7

STEEL PROPERTIES:

HEAT NO: E21105599XX

STEEL GRADE: SAE 4140

STEEL SIZE: 0.945"

CHEMISTRY COMPOSITION:

MILL SHEET# G1100000059359

CHEMIST	C%	Mn%	Si%	P%	S%	Cr%	Mo%	Ni%	Cu%
SPEC.	0.38	0.75	0.15	MAX	MAX	0.8	0.15	MAX	MAX
	0.48	1.00	0.35	0.035	0.04	1.10	0.25	0.25	0.35
RESULT	0.38	0.89	0.25	0.010	0.004	0.99	0.19	0.02	0.02

MECHANICAL PROPERTIES: 2 1/2 and under

SPECIFICATION: ASTM A320-09b L7 STUDS& ASME SA320

ITEM	TENSILE STRENGTH MIN (psi)	YIELD STRENGTH MIN (psi)	Elongation MIN (%)	Reduction of Area MIN (%)	Tempering MIN (°C)	Quenching (°C)	Hardness (HRC) Max	MACRO ETCH TESTING
SPEC.	125,000	105,000	16	50	593	820-880	35	
RESULT	140,000	133,000	18	57.5	640	860	29.5	PASSED

CHARACTERISTICS

TEST METHOD

SPECIFIED

ACTUAL RESULT

ACC.

REJ.

Carpy Impact V Notch at -101°C Impact Test Min 20 ft.lbs

22

21

20

3

0

CHARACTERISTICE

TEST METHOD

SPECIFIED

ACTUAL RESULT

ACC.

REJ.

MACROETCH

ASTM E381

S1/R1/C1-S2/R2/C3

S2/R2/C2

4

0

MACRO-ETCH TEST PER ASTM A962/962M SECTION 5.5 IS REQUIRED AND MUST BE CERTIFIED TO, AND APPEAR ON, MANUFACTURERS TEST REPORT

DIMENSION:

SPECIFICATION: ASME B18.1.3

ITEM	Shank Dia	MAJOR DIA	GO	NO GO	T/Length	L/Tolerance	STRAIGHTNESS	ADD
STANDARD		0.998"	2A	2A		4.312"	MAX	
		0.983"	GO	NO		4.188"	0.021"	
TEST RESULTS		0.990"	OK	OK		4.310"	0.015"	OK

REPORT: ACCEPT

PARTS ARE MANUFACTURED AND TESTED IN ACCORDANCE WITH A320-09b L7 STUDS& ASME SA320

ALL TESTS IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE APPLICABLE ASTM SPECIFICATION

ALSO MEET THE REQUIREMENTS OF ASME SA-95 SECTION 2.

WE CERTIFY THAT THIS DATA IS A TRUE REPRESENTATION OF INFORMATION PROVIDED BY

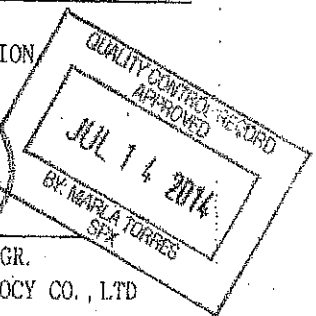
THE MATERIAL SUPPLIER AND OUR TESTING LABORATORY.

All parts meet the requirements of FQA and records of compliance are on file.

Marker's ISO#3270-2006-AQ-RGC-RvA

SIGNATURE OF Q.A. LAB MGR.

ZHEJIANG MORGAN BROTHER TECHNOLOGY CO., LTD



MILL SHEET (TRANSLATED FROM CHINESE COPY)

MILL PLANT NAME :JIANGSHU XINGCHENG STEEL CO. LTD.

CERTIFICATE NO./FILING NO:G1100000059359/JX054-2010-07

DATE OF ISSUE:OCT 21 2011

SPECIFICATIONS:B7 ALLOY STEEL

SIZE:0.945"

HEAT NUMBER:E21105599XX

CHEMICAL COMPOSITION(%)

C	Mn	Si	P	S	Cr	Ni	Cu	Mo	Ti	V	B	Al
0.38	0.89	0.25	0.010	0.004	0.99	0.02	0.02	0.190				0.021

PHYSICAL PROPERTIES:

YIELD POINT:780-790MPA

TENSILE STRENGTH:925-935MPA

ELONGATION:18%

MACRO ETCH TEST COMFORMS AND MEETS E381-S1 R1 C1.

IMPACT TEST:106-181AKJ

CHINESE COPY ENTERED BY:FU JIN MING

ENGLISH TRANSLATED BY:LIU DONG SHENG



江阴兴澄特种钢铁有限公司

JIANGYIN XINGCHENG SPECIAL STEEL CO., LTD.

XINGCHENG STEEL

合同号: G11A750003

Contract No.

交货状态: 热轧

Condition

收货单位: 浙江康乐兄弟科技有限公司

Sold To

产品名称: 合金结构钢

Description of Goods

用途: 小零件

Usage

产品质量证明书

INSPECTION CERTIFICATE

地址: 中国江苏省江阴市滨江东路207号

ADD: NO. 207 BINGJIANG ROAD, JIANGYIN, JIANGSU, CHINA

TEL: 0510-85183388 FAX: 0510-85181400

R13-R391-02-E

质保书号: G1109000059588

Sheet No.

执行标准: JB54-2010 07

Specification

生产许可证:

Production Permit No.

规格 (长 x 宽): 24.00 (7100)

Size (L)

编号: 07

Grade

序号	炉号	钢号	规格	重量	化学成分	力学性能	金相组织	表面质量	尺寸精度	包装	备注
No.	Heat No.	Steel No.	Size	Weight	Chemical	Mechanical	Micro	Surface	Dimension	Packing	Remarks
1	E2110558001	41110410	19	47.208	19	47.208	19	47.208	19	47.208	

序号	炉号	钢号	规格	重量	化学成分	力学性能	金相组织	表面质量	尺寸精度	包装	备注
No.	Heat No.	Steel No.	Size	Weight	Chemical	Mechanical	Micro	Surface	Dimension	Packing	Remarks
1	E2110558001	41110410	19	47.208	19	47.208	19	47.208	19	47.208	

说明: 1. 本证明书是随产品一起提供的, 如丢失, 请及时向本公司索取。
2. 本证明书是随产品一起提供的, 如丢失, 请及时向本公司索取。
3. 本证明书是随产品一起提供的, 如丢失, 请及时向本公司索取。

签发日期: 2011/02/09
Issued Date

签发人: 王云
Principal

质量管理部门
Stamp of Department of Quality Assurance

质量管理部门
Quality Assurance

INSPECTION CERTIFICATE

KPF FACTORY : 50, CHUNGJUSANDAN 5-RO, CHUNGJU-SI
CHUNGCHONGNOK-DO, KOREA 380-250
TEL : (043)849 - 1114 FAX : (043)849 - 1254

FIELD OF TESTING : MECHANICAL TESTING
LAB. ID. : 111363
CERT. NO. : 882-01

STANDARD OF CERTIFIED : ISO/TS 16949, ISO 9001, ISO 14001
CERTIFICAT NO. : TS-01889, AC-01889, SAC-01889

STANDARD OF CERTIFIED : EN 14399-1, 2, 4, 5, 6, 10
CERTIFICAT NO. : 1020 - CPD - 070038467

PAGE 1/1

2. Macroetch Meet

Division	Surface Condition	Random Condition	Center Segregation	Spec. of Test Method
Spec.	S2	R2	C3	
Results	S1	R1	C1	ASTM E381
Tested By	CLLEE			

Customer : FASTENAL(INDIANAPOLIS)
Description : HVH N GR7L
Grade : GR7L
Size : 1-8UNC
Marking : 7LKPF LOGO
Surface Condition : PLAIN
Lot No. : 2003438700
Q'ty Shipped : 3,210 PCS

1. Chemical Composition (%)

Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	B	Cu	Ti	V	Al
Min.	37	15	65			75	15						x1000
Max.	49	35	110	35	40	120	25						
CL2834	41	21	79	12	10	101	23	49		9			

3. Mechanical Properties

Division	Hardness		Specimen Tensile				Proof Load		Wedge Tensile Load	Sample Nut Hardness 590°C/24hr n = 1	Impact Test		Bending Test	Bolt Re-tempering Hardness	Tap Wrench Fit Test	Decarburization Test By Hardness	
	Surface	Core	Yield Strength	Tensile Strength	Elongation	Reduction of Area	Load	Elongation									
	n = 2 _s	HRC	HRC					n = 2	LBF	HBB	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb	ft-lb
Unit	Min.	Max.															
Spec.	Min.	24															
	Max.	35															
		30															
Results	1	HRC															
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10																
Avg.	31																
Tested By	D.H.KIM																
Spec. of Test Method	ASTM A370																

Reference : PART NO : 0155742

ALL FASTENERS MEET THE REQUIREMENTS OF THE (FQA) AND RECORDS OF COMPLIANCE ARE ON FILE
EN10204-3.1

This is to certify that the above results are true and correct in every details

YOUNG CHOI
YOUNG - O CHOI
Chief of Quality Management Dept.

QUALITY CONTROL RECORD
APPROVED

KPF

JUL 18 2014

BY: MARIA TORRES
SPX

Certificate No : 1420140513094

4. Others

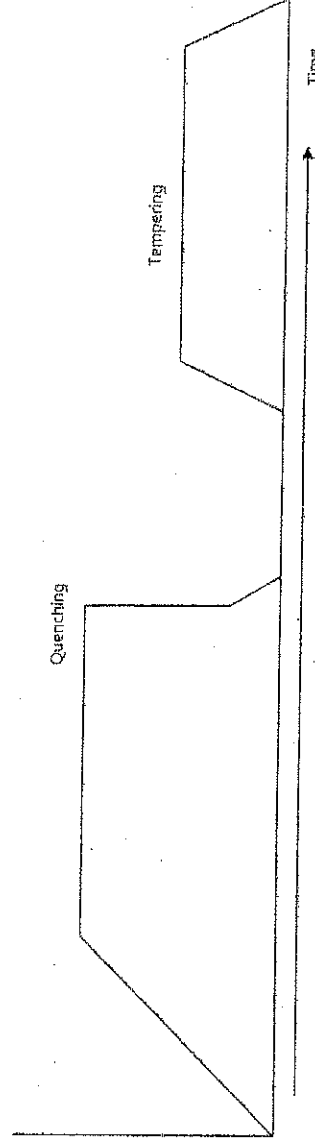
PAGE 2/2

Division	Plate Thickness	Salt Spray Test	Decarburization Test By Microscope		Torque Tension Test		Prevaling Torque Test						
			Partial Decarb. Base Metal	Gross Decarb. Depth	Clamp Load	Tightening Torque	1st Install prevailing Torque	Clamp Load	1st Rem. High't prevailing Torque	1st Rem. Low't prevailing Torque	5th Rem. High't prevailing Torque	5th Rem. Low't prevailing Torque	3rd Rem. Low't prevailing Torque
Unit	Min												
	Max												
Spec	Min												
	Max												
Results	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
Ave.													
Tested By													
Spec. of Test Method													

5. Heat Treatment

Quenching	Min. Temp.	
	Max. Temp.	
	Working Temp.	870 °C
	Holding Time	30 min.
Tempering	Min. Temp.	595 °C
	Working Temp.	640 °C
	Holding Time	50 min.

Temperature



This is to certify that the above results are true and correct in every details

KPF

SPX
Flow Technology
HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 09 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

Attached are the radiographic inspection reports for the above.

DH/mt

Douglas Hinze

Douglas Hinze

Quality Control Supervisor



ME
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

1888515 - 010 1000002 953697



Testmasters, Inc.
NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

Form No.: TI-005
Rev. No. 001
Rev. Date: 09-28-04

Client: **SPX PROCESS EQUIPMENT**
Procedure: **ti-RT-4.10.2.1, Rev. 10**
Specification: **ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A**
Description: **24" 600# M303A BODY TUBE**
Scope of Examination: **100% DESIGNATED WELDMENTS**

Report No.: **14-126338**
Date: **11-07-2014**
P/O No: **4501072102**
W/O No: **2202648**
Page: **1 OF 1**

CURIES OF IR-192 51.4 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 3:45 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP#: 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		
LS-1 14-126338	6-7	4.5" X 17"	/		
LS-2 14-126338	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"		XXX	SLAG
	4-5	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	5-6	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	6-7	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
LS-3 14-126338	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-4 14-126338	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT

Time: _____ AM/PM
Inspector: **MANUEL JONES JR.** RT LEVEL II

To: _____ AM/PM
ASSISTANT: **MALCOLM SMITH**

Inspector Signature: _____

Client Signature: _____

Repair Acceptable

RADIOGRAPHIC INSPECTION REPORT

1888515 - 010 1000002953698


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES
RADIOGRAPHIC INSPECTION REPORT
 Form No.: TI-005
 Rev. No. 001
 Rev. Date: 09-28-04

 Client: **SPX PROCESS EQUIPMENT**
 Procedure: **ti-RT-4.10.2.1, Rev. 10**
 Specification: **ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A**
 Description: **24" 600# M303A BODY TUBE**
 Scope of Examination: **100% DESIGNATED WELDMENTS**

 Report No.: **14-126335**
 Date: **11-07-2014**
 P/O No: **4501072102**
 W/O No: **2202648**
 Page: **1 OF 1**

CURIES OF IR-192 51.4 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 3:45 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

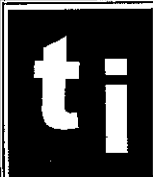
PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP# 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		
LS-1 14-126335	6-7	4.5" X 17"	/		
LS-2 14-126335	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-3 14-126335	1-2	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	2-3	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	3-4	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	4-5	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	5-6	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	6-7	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT, SLAG
LS-4 14-126335	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

 Time: _____ AM/PM
 Inspector: **MANUEL JONES JR.** RT LEVEL II

 To: _____ AM/PM
 ASSISTANT: **MALCOLM SMITH**

Inspector Signature: _____

Client Signature: _____



Testmasters, Inc.

NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

Form No. : TI-005

Rev. No. 001

Rev. Date: 09-28-04

Client: SPX PROCESS EQUIPMENT

Report No.: 14-126351

Procedure: ti-RT-4.10.2.1, Rev. 10

Date: 11-11-2014

Specification: ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A

P/O No: 4501072102

Description: 24" 600# M303A BODY TUBE

W/O No: 2202648

Scope of Examination: 100% DESIGNATED WELDMENTS

Page: 1 OF 1

CURIES OF IR-192 49.5 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 4:00 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 12	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

[illegible]

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR.

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature:

Client Signature: _____

1888515 - 010 1000002 953699

**Testmasters, Inc.**

NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT
 Form No. : TI-005
 Rev. No. 001
 Rev. Date: 09-28-04
Client: **SPX PROCESS EQUIPMENT**

Report No.: 14-126337

Procedure: ti-RT-4.10.2.1, Rev. 10

Date: 11-07-2014

Specification: ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A

P/O No: 4501072102

Description: 24" 600# M303A BODY TUBE

W/O No: 2202648

Scope of Examination: 100% DESIGNATED WELDMENTS

Page: 1 OF 1

CURIES OF IR-192 51.4 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 3:45 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

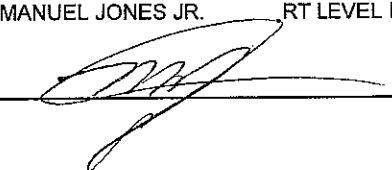
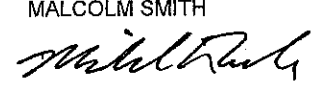
PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP# 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
LS-1 14-126337	6-7	4.5" X 17"	/		
			/		
LS-2 14-126337	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	4-5	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	5-6	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
	6-7	4.5" X 17"		XXX	SURFACE O.D., UNDERCUT
LS-3 14-126337	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"		XXX	SLAG
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-4 14-126337	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

Time: AM/PM

To: AM/PM

Inspector: MANUEL JONES JR. RT LEVEL II

ASSISTANT: MALCOLM SMITH

Inspector Signature: Client Signature: 

RI Acceptable

ti

RADIOGRAPHIC INSPECTION REPORT

Report No.: 14-126352
Date: 11-11-2014
P/O No: 4501072102
W/O No: 2202648
Page: 1 OF 1

RADIOGRAPHIC READING SHEET (In-Process Inspection)

Client Signature:

1888515 - 010

1000002953700


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

 Form No. : TI-005
 Rev. No. 001
 Rev. Date: 09-28-04

 Client: **SPX PROCESS EQUIPMENT**
 Procedure: **ti-RT-4.10.2.1, Rev. 10**
 Specification: **ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A**
 Description: **24" 600# M303A BODY TUBE**
 Scope of Examination: **100% DESIGNATED WELDMENTS**

 Report No.: **14-126341**
 Date: **11-11-2014**
 P/O No: **4501072102**
 W/O No: **2202648**
 Page: **1 OF 1**

CURIES OF IR-192 49.5 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 4:00 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP# 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		
LS-1 14-126341	6-7	4.5" X 17"	/		
LS-2 14-126341	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-3 14-126341	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-4 14-126341	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature:

Client Signature:


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

 Form No.: TI-005
 Rev. No. 001
 Rev. Date: 09-28-04

 Client: **SPX PROCESS EQUIPMENT**

Report No.: 14-126334

Procedure: ti-RT-4.10.2.1, Rev. 10

Date: 11-06-2014

Specification: ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A

P/O No: 4501072102

Description: 24" 600# M303A BODY TUBE

W/O No: 2202648

Scope of Examination: 100% DESIGNATED WELDMENTS

Page: 1 OF 1

CURIES OF IR-192 51.9 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 3:45 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWS CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP#: 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		SLAG
LS-1 14-126334	6-7	4.5" X 17"	/		
LS-2 14-126334	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		SURFACE O.D.
	6-7	4.5" X 17"	/		SURFACE O.D.
LS-3 14-126334	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-4 14-126334	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR.

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature:

Client Signature:

1888515 - 010 1000002953702


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES
RADIOGRAPHIC INSPECTION REPORT
 Form No. : TI-005
 Rev. No. 001
 Rev. Date: 09-28-04

 Client: **SPX PROCESS EQUIPMENT**
 Procedure: **ti-RT-4.10.2.1, Rev. 10**
 Specification: **ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A**
 Description: **24" 600# M303A BODY TUBE**
 Scope of Examination: **100% DESIGNATED WELDMENTS**

 Report No.: **14-126333**
 Date: **11-06-2014**
 P/O No: **4501072102**
 W/O No: **2202648**
 Page: **1 OF 1**

CURIES OF IR-192 51.9 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 3:45 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP# 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		
LS-1 14-126333	6-7	4.5" X 17"	/		
LS-2 14-126333	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-3 14-126333	1-2	4.5" X 17"		XXX	SLAG
	2-3	4.5" X 17"		XXX	SLAG
	3-4	4.5" X 17"		XXX	SLAG
	4-5	4.5" X 17"		XXX	SLAG
	5-6	4.5" X 17"		XXX	SLAG
	6-7	4.5" X 17"		XXX	SLAG
LS-4 14-126333	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR.

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature:

Client Signature:

Manuel Jones Jr.
RT-RT2 Acceptable



RADIOGRAPHIC INSPECTION REPORT

Report No.: 14-126350
Date: 11-11-2014
P/O No: 4501072102
W/O No: 2202648
Page: 1 OF 1

CURIES OF IR-192 49.5 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 4:00 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGEA- D7 / D5	FILM QUANTITY 12	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

[illegible]

Inspector Signature:

Client Signature:

1 0 0 0 0 0 2 9 5 3 7 0 2



Testmasters, Inc.

NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

Form No. : TI-005

Rev. No. 001

Rev. Date: 09-28-04

Client: SPX PROCESS EQUIPMENT

Report No.: 14-126462

Procedure: ti-RT-4.10.2.1, Rev. 10

Date: 11-13-2014

Specification: ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A

P/O No: 4501072102

Description: 24" 600# M303A BODY TUBE

W/O No: 2202648

Scope of Examination: 100% DESIGNATED WELDMENTS

Page: 1 OF 1

CURIES OF IR-192 48.6 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 4:00 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 4	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

[illegible]

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR.

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature: _____

Client Signature: _____


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

RADIOGRAPHIC INSPECTION REPORT

 Form No.: TI-005
 Rev. No. 001
 Rev. Date: 09-28-04

 Client: **SPX PROCESS EQUIPMENT**
 Procedure: **ti-RT-4.10.2.1, Rev. 10**
 Specification: **ASME SEC.VIII, DIV.I, UW-51 2013 ED. SPX HIP 2269, REV. A**
 Description: **24" 600# M303A BODY TUBE**
 Scope of Examination: **100% DESIGNATED WELDMENTS**

 Report No.: **14-126342**
 Date: **11-11-2014**
 P/O No: **4501072102**
 W/O No: **2202648**
 Page: **1 OF 1**

CURIES OF IR-192 49.5 CAMERA D-7438	SOURCE SIZE .155"	MATERIAL THICKNESS 1.00"	EXPOSURE TIME 4:00 MIN
EXPOSURE CONFIGURATION SWE ARRANGMT. "A"	VIEWING CONFIGURATION SWV	PENETRATOR/SENSITIVITY ASTM 1-B F/S	LEAD SCREENS 0.010" Front & Back
FILM TYPE AGFA- D7 / D5	FILM QUANTITY 48	SOURCE TO FILM DISTANCE 16.00"	OBJECT TO FILM 1.250" MIN

RADIOGRAPHIC READING SHEET (In-Process Inspection)

PART NO	VIEW NO	FILM SIZE	OK	REJ	REMARKS
PO: 4501072102	1-2	4.5" X 17"	/		
W/O: 2202648	2-3	4.5" X 17"	/		
P/N: 7-414605	3-4	4.5" X 17"	/		
OP# 0090	4-5	4.5" X 17"	/		
S/N:	5-6	4.5" X 17"	/		
LS-1 14-126342	6-7	4.5" X 17"	/		
LS-2 14-126342	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-3 14-126342	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		
LS-4 14-126342	1-2	4.5" X 17"	/		
	2-3	4.5" X 17"	/		
	3-4	4.5" X 17"	/		
	4-5	4.5" X 17"	/		
	5-6	4.5" X 17"	/		
	6-7	4.5" X 17"	/		

Time:

AM/PM

To:

AM/PM

Inspector:

MANUEL JONES JR.

RT LEVEL II

ASSISTANT:

MALCOLM SMITH

Inspector Signature:

Client Signature:



Flow Technology

HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 10 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

Attached are the liquid penetrant, magnetic particle, and ultrasonic test inspection reports for the above.

Douglas Hinze

DH/mt

Quality Control Supervisor



ME
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11502	12/8/2014		

Vendor ID#: 14126338

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREADOLET WELDS. LP BOTTOM PLATE WELDS & THREADOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943697
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: Procedure: Acceptance Criteria:			Inspector: Thomas Nigrelli
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: Procedure: Acceptance Criteria:			
VISIBLE IP-2268 & IP-2214 ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date:

12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11503	12/8/2014		

Vendor ID#: 14126335

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943698
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 Procedure: IP-2285 & IP-2200 Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 6			Inspector: Thomas Nigrelli
Liquid Penetrant / Method: VISIBLE Procedure: IP-2268 & IP-2214 Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11504	12/8/2014		

Vendor ID#: 14126337

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943699
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Inspector: Thomas Nigrelli
Procedure: IP-2268 & IP-2214			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: VISIBLE			
Procedure: IP-2268 & IP-2214			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date:

12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11505	12/8/2014		

Vendor ID#: 14126341

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943700
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: Procedure: Acceptance Criteria:			Inspector: Thomas Nigrelli
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: Procedure: Acceptance Criteria:			
VISIBLE IP-2268 & IP-2214 ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11506	12/8/2014		

Vendor ID#: 14126334

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943701
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Inspector: Thomas Nigrelli
Procedure: ASME Sec. VIII, Div. 1, App. 6			
Acceptance Criteria:			
Liquid Penetrant / Method: VISIBLE			
Procedure: IP-2268 & IP-2214			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspector's Signature: Thomas R. Nigrelli

Weld Shop Inspector



PT/MT

Date:

12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11507	12/8/2014		

Vendor ID#: 14126333

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943702
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Inspector: Thomas Nigrelli
Procedure: IP-2285 & IP-2200			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: VISIBLE			
Procedure: IP-2268 & IP-2214			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-421389	MJ11508	12/8/2014		

Vendor ID#: 14126342

☒ **Magnetic Particle**

☒ **Liquid Penetrant**

Special Instruction / Weld Number

MT 4-CORNER PRESSURE CONTAINING WELDS, RIB TO HUB, THREDOLET WELDS. LP BOTTOM PLATE WELDS & THREDOLET WELDS. LP ALL SEAL WELDS AND MT WELD END WELD BEVELS.

DESCRIPTION		SALES ORDER	SERIAL#
24" 600 M303		1888515-10	1000002943703
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Inspector: Thomas Nigrelli
Procedure: ASME Sec. VIII, Div. 1, App. 6			
Acceptance Criteria:			
Liquid Penetrant / Method: VISIBLE			
Procedure: IP-2268 & IP-2214			
Acceptance Criteria: ASME Sec. VIII, Div. 1, App. 8			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date:

12/8/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11471	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION			SALES ORDER	SERIAL#
CPLA 24" 600			1888515-10	1000002953697
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION	
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC	
Magnetic Particle / Method:			Inspector:	
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Thomas Nigrelli	
Procedure:				
ASME Sec. VIII, Div. 1, App. 6				
Liquid Penetrant / Method:				
Procedure:				
Acceptance Criteria:				

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature:

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date:

11/26/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11469	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION		SALES ORDER	SERIAL#
CPLA 24" 600		1888515-10	1000002953698
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: Procedure: Acceptance Criteria:			Inspector: Thomas Nigrelli
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: Procedure: Acceptance Criteria:			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 11/26/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11468	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION			SALES ORDER	SERIAL#
CPLA 24" 600			1888515-10	1000002953699
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION	
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC	
Magnetic Particle / Method:			Inspector:	
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Thomas Nigrelli	
Procedure:				
ASME Sec. VIII, Div. 1, App. 6				
Liquid Penetrant / Method:				
Procedure:				
Acceptance Criteria:				

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature:

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 11/26/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11465	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION		SALES ORDER	SERIAL#
CPLA 24" 600		1888515-10	1000002953700
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: Procedure: Acceptance Criteria:			Inspector: Thomas Nigrelli
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. 1, App. 6			
Liquid Penetrant / Method: Procedure: Acceptance Criteria:			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: _____

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 11/26/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11467	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION			SALES ORDER	SERIAL#
CPLA 24" 600			1888515-10	1000002953701
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION	
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC	
Magnetic Particle / Method:			Inspector:	
Procedure:			Thomas Nigrelli	
Acceptance Criteria:				
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. 1, App. 6				
Liquid Penetrant / Method:				
Procedure:				
Acceptance Criteria:				

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature:

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 11/26/2014

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11464	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION		SALES ORDER	SERIAL#
CPLA 24" 600		1888515-10	1000002953702
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: Procedure: Acceptance Criteria:			Inspector: Thomas Nigrelli
WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200 ASME Sec. VIII, Div. I, App. 6			
Liquid Penetrant / Method: Procedure: Acceptance Criteria:			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature: Thomas R. Nigrelli  PT/MT Date: 11/26/2014
Weld Shop Inspector

SPX Flow Control

Houston, Texas

Non-Destructive Examination Report

P/N	ID#	INSP DATE	W/O#	HEAT#
7-414441	MJ11466	11/26/2014	2216851	

☒ **Magnetic Particle**

☐ **Liquid Penetrant**

Special Instruction / Weld Number
MT ALL ACCESSIBLE WELDS

DESCRIPTION		SALES ORDER	SERIAL#
CPLA 24" 600		1888515-10	1000002953703
NDE / SERIAL#	MT INSTRUMENT	CAL. DUE DATE	MAGNETIZATION
See List Above	☒ MT-0013 / Yoke	5/1/2015	4 amp AC or Pulsed DC
Magnetic Particle / Method: WET (Fab. And Fab. Weld Repair) IP-2285 & IP-2200			Inspector: Thomas Nigrelli
Procedure: ASME Sec. VIII, Div. 1, App. 6			
Acceptance Criteria:			
Liquid Penetrant / Method:			
Procedure:			
Acceptance Criteria:			

I hereby certify that the item(s) described above have been examined and comply with the acceptance criteria.

Test Results:

NO INDICATIONS FOUND

Comments:

Inspectors Signature:

Thomas R. Nigrelli
Weld Shop Inspector



PT/MT

Date: 11/26/2014

1888515-10 10000295369.7


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

 Form No. TI-006
 Rev. No. 001
 Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127080-B- UT REV.1
Date: 11-25-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters												
Instrument Mfg.:	OLYMPUS	Model:	EPOCH XT	S/N:	121441104	Date of Calibration:	04-22-2014					
Longitudinal 0°	5.0	MHz	Size	.500" X .500"	Type:	TECHNISONIC DUAL	S/N:	DR-080404-GP	Ref. dB	31.3	Scan dB:	37.3
Angle Beam 70°	2.25	MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/03	Ref. dB	45.8	Scan dB:	51.8
Angle Beam 60°	2.25	MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/02	Ref. dB	40.7	Scan dB:	46.7
Angle Beam 45°	N/A	MHz	Size	N/A	Type:	N/A	S/N:	N/A	Ref. dB	N/A	Scan dB:	N/A

Calibration Standards: DCS BLOCK S/N:02-7766 (RANGE DETERMINATION) / 0.75" ASME BASIC CALIBRATION BLOCK S/N:10-1110 (SENSITIVITY)
 Surface Condition: AS WELDED Rangs: 1.0" (SB) & 5.0 (SW) FSW Couplant SONOTECH-SONOGEL BATCH# 10343-B

Item	Quantity	Description	Results (In Process Inspection)
01	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-126338 T/P TO HUB WELD-A & WELD-B	ACCEPT

Inspector: JOHN FAULKNER ACCP LEVEL II UT, CERT #167272 **Assistant:** N/A

Inspector Signature:

ELECTRONICALLY SIGNED SIGNATURE. ORIGINAL ON FILE
 REVISED BY 12-09-2014

Customer Signature:

188515-10 1000002953698


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

 Form No. TI-006
 Rev. No. 001
 Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127080- UT REV.1
Date: 11-25-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters									
Instrument Mfg.:	OLYMPUS	Model:	EPOCH XT	S/N:	121441104	Date of Calibration:	04-22-2014		
Longitudinal 0°	5.0 MHz	Size	.500" X .500"	Type:	TECHNISONIC DUAL	S/N:	DR-050404-GP	Ref. dB	31.3 Scan dB: 37.3
Angle Beam 70°	2.25 MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/03	Ref. dB	45.8 Scan dB: 51.8
Angle Beam 60°	2.25 MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/02	Ref. dB	40.7 Scan dB: 46.7
Angle Beam 45°	N/A	Size	N/A	Type:	N/A	S/N:	N/A	Ref. dB	N/A Scan dB: N/A

Calibration Standards: DCS BLOCK S/N:02-7766 (RANGE DETERMINATION) / 0.75" ASME BASIC CALIBRATION BLOCK S/N:10-1110 (SENSITIVITY)
 Surface Condition: AS WELDED Range: 1.0" (SB) & 5.0 (SW) FSW Couplant SONOTECH -SONOGEL BATCH# 10343-B

Item	Quantity	Description	Results (In Process Inspection)
01	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-126335 T/P TO HUB WELD-A & WELD-B	ACCEPT

Inspector: JOHN FAULKNER ACCP LEVEL II UT, CERT #167272 Assistant: N/A

Inspector Signature:

 ELECTRONICALLY SIGNED SIGNATURE. ORIGINAL ON FILE
 REVISED BY 11-09-2014

Customer Signature:

1888515-10 100002953699



Testmasters, Inc.
NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

Form No. TI-006
Rev. No. 001
Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07, ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127080-A- UT REV.1
Date: 11-25-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters											
Instrument Mfg.:	OLYMPUS		Model:	EPOCH XT		S/N:	121441104		Date of Calibration:		04-22-2014
Longitudinal 0°	5.0	MHz	Size	.500" X .500"		Type:	TECHNISONIC DUAL	S/N:	DR-060404-GP	Ref. dB	31.3
Angle Beam 70°	2.25	MHz	Size	.500" RND		Type:	SONATEST-SINGLE	S/N:	425/03	Ref. dB	45.8
Angle Beam 60°	2.25	MHz	Size	.500" RND		Type:	SONATEST-SINGLE	S/N:	425/02	Ref. dB	40.7
Angle Beam 45°	N/A	MHz	Size	N/A		Type:	N/A	S/N:	N/A	Ref. dB	N/A
Calibration Standards: DCS BLOCK S/N:02-7766 (RANGE DETERMINATION) / 0.75" ASME BASIC CALIBRATION BLOCK S/N:10-1110 (SENSITIVITY)											
Surface Condition:		AS WELDED	Range:		1.0" (SB) & 5.0 (SW) FSW		Couplant		SONOTECH-SONOGEL BATCH# 10343-B		

Item	Quantity	Description	Results (In Process Inspection)
01	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-126337 T/P TO HUB WELD-A & WELD-B	ACCEPT

Inspector: JOHN FAULKNER ACCP LEVEL II UT, CERT #167272 **Assistant:** N/A

Inspector Signature:

ELECTRONICALLY SIGNED SIGNATURE. ORIGINAL ON FILE
REVISED BY 12-10-2014

Customer Signature:

1888515-10 1000002953700



Testmasters, Inc.
NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

Form No. TI-006
Rev. No. 001
Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127080-C- UT REV. 1
Date: 11-25-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters									
Instrument Mfg.:	OLYMPUS	Model:	EPOCH XT	S/N:	121441104	Date of Calibration:	04-22-2014		
Longitudinal 0°	5.0 MHz	Size	.500" X .500"	Type:	TECHNISONIC DUAL	S/N:	DR-050404-GP	Ref. dB	31.3 Scan dB: 37.3
Angle Beam 70°	2.25 MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/03	Ref. dB	45.8 Scan dB: 51.8
Angle Beam 60°	2.25 MHz	Size	.500" RND	Type:	SONATEST-SINGLE	S/N:	425/02	Ref. dB	40.7 Scan dB: 46.7
Angle Beam 45°	N/A MHz	Size	N/A	Type:	N/A	S/N:	N/A	Ref. dB	N/A Scan dB: N/A

Calibration Standards: DCS BLOCK S/N:02-7766 (RANGE DETERMINATION) / 0.75" ASME BASIC CALIBRATION BLOCK S/N:10-1110 (SENSITIVITY)
Surface Condition: AS WELDED Range: 1.0" (SB) & 5.0 (SW) FSW Couplant SONOTECH -SONOGEL BATCH# 10343-B

Item	Quantity	Description	Results (In Process Inspection)
01	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-126341 T/P TO HUB WELD-A & WELD-B	ACCEPT

Inspector: JOHN FAULKNER ACCP LEVEL II UT, CERT #167272 Assistant: N/A

Inspector Signature:

Customer Signature: _____

1888515 -10 100002953701



Testmasters, Inc.
NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

Form No. TI-006
Rev. No. 001
Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127167- UT REV.1
Date: 12-01-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters											
Instrument Mfg.	PANAMETRICS	Model	EPOCH 4	040262012	121441104	Date of Calibration:		12-12-2013			
Longitudinal 0°	5.0	MHz	Size	0.5" X 0.5"	Type:	KBI-DUAL	S/N:	0159PD	Ref. dB	40.0	Scan dB: 46.0
Angle Beam 70°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	43560	Ref. dB	50.5	Scan dB: 56.5
Angle Beam 60°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	33904	Ref. dB	46.6	Scan dB: 52.6
Calibration DCS BLOCK S/N:00-6221 (RANGE DETERMINATION) / 0.750" ASME BASIC CALIBRATION BLOCK S/N: 19482-01 (SENSITIVITY)											
Standards:											
Surface Condition:	AS WELDED		Range:	1.0" (SB) & 5.0 (SW) FSW		Couplant	SONOTECH --SONOGEL BATCH# 10343-B				

Item	Quantity	Description	Results (In Process Inspection)
1	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-128334 T/P TO HUB WELD-A -R1	ACCEPT

Inspector: D. DRAKE LEVEL II UT

Assistant: N/A

Inspector Signature:

D. Drake

Customer Signature:

ELECTRONICALLY SCANNED SIGNATURE. ORIGINAL ON FILE
REVISED BY MM 12-08-2014

1888515-10 100002953702


Testmasters, Inc.
 NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

 Form No. TI-006
 Rev. No. 001
 Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127167-A- UT
Date: 12-01-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters											
Instrument Mfg.	PANAMETRICS	Model	EPOCH 4	040262012	121441104	Date of Calibration:		12-12-2013			
Longitudinal 0°	5.0	MHz	Size	0.5" X 0.5"	Type:	KBI-DUAL	S/N:	0159PD	Ref. dB	40.0	Scan dB: 46.0
Angle Beam 70°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	43560	Ref. dB	50.5	Scan dB: 56.5
Angle Beam 60°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	33904	Ref. dB	46.6	Scan dB: 52.6
Calibration DCS BLOCK S/N:00-6221 (RANGE DETERMINATION) / 0.750" ASME BASIC CALIBRATION BLOCK S/N: 19482-01 (SENSITIVITY)											
Standards:											
Surface Condition:	AS WELDED	Range:	1.0" (SB) & 5.0 (SW) FSW				Couplant	SONOTECH -SONOGEL BATCH# 10343-B			

Item	Quantity	Description	Results (In Process Inspection)
1	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 QPR: 0080 SN: 14-126333 T/P TO HUB WELD-A AND WELD-B	ACCEPT

Inspector: D. DRAKE LEVEL II UT

Assistant: N/A

Inspector Signature:


 ELECTRONICALLY SIGNED SIGNATURE. ORIGINAL ON FILE
 EMAILED BY MM 12-08-2014

Customer Signature:

1888515-10 100002953703



Testmasters, Inc.
NON-DESTRUCTIVE TESTING SERVICES

ULTRASONIC INSPECTION REPORT

Form No. TI-006
Rev. No. 001
Rev. Date: 09-28-04

Client: SPX- HOUSTON, M & J VALVE DIVISION
Procedure: TI 4.10.1.5 REV- 07 , ASME-V, 2013- ARTICLE -4, SPX- M&J DOC HIP 2203 REV-J
Specification: ASME- SECTION VIII, APPENDIX-12, 2013
Description: SEE BELOW
Scope of Examination: UT- VOLUMETRIC T/P TO HUB WELDS

Report No: 14-127167-B- UT REV.1
Date: 12-01-2014
P/O No: 4501085365
Job No: 2224242
Page: 1 OF 1

Testing Parameters											
Instrument Mfg.	PANAMETRICS	Model	EPOCH 4	040262012	121441104	Date of Calibration:		12-12-2013			
Longitudinal 0°	5.0	MHz	Size	0.5" X 0.5"	Type:	KBI-DUAL	S/N:	0159PD	Ref. dB	40.0	Scan dB: 46.0
Angle Beam 70°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	43560	Ref. dB	50.5	Scan dB: 56.5
Angle Beam 60°	2.25	MHz	Size	0.500" DIA.	Type:	TECHNISONIC	S/N:	33904	Ref. dB	46.6	Scan dB: 52.6
Calibration DCS BLOCK S/N:00-6221 (RANGE DETERMINATION) / 0.750" ASME BASIC CALIBRATION BLOCK S/N: 19482-01 (SENSITIVITY)											
Standards:											
Surface Condition:		AS WELDED		Range:		1.0" (SB) & 5.0 (SW) FSW		Couplant SONOTECH -SONOGEL BATCH# 10343-B			

Item	Quantity	Description	Results (In Process Inspection)
1	01	BDY -MCF 24" 600# M303A (FPW), WE X WE 6AGL EN112B# CPO: 4501085365 W/O: 2224242 P/N: 7-421450 OPR: 0080 SN: 14-126342 T/P TO HUB WELD-A AND WELD-B	ACCEPT

Inspector: D. DRAKE LEVEL II UT

Assistant: N/A

Inspector Signature:

D. Drake
ELECTRONICALLY SCANNED SIGNATURE, ORIGINAL ON FILE
REVISED BY MM 12-09-2014

Customer Signature:



Flow Technology

HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 09 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

SPX Flow Technology Certifies that the above product meets the requirements of the drawing and specifications of SPX Flow Technology.

Douglas Hinze

DH/mt

Quality Control Supervisor



ME

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

SPX
Flow Technology
HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 09 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

Attached are the hydrostatic test reports for the above.

DH/mt

Douglas Hinze

Douglas Hinze

Quality Control Supervisor



me
12-12-14

PRODUCT: ☒ GATE ☐ DAN-FLO ☐ EX-GATE ☐ BALLTROL ☐ CEG ☐ BALL ☐ CHECK ☐ OTHER _____	SIZE: <u>24"</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 900 ☐ 300 ☐ 1500 ☐ 400 ☐ 2500 ☒ 600 ☐ OTHER _____	ENDS: ☐ FXP ☒ WXP ☐ WXF ☐ _____	SERIAL NO. <u>1000002953697</u> S.O. NO. <u>188851510-20-25</u> CUSTOMER <u>ENBRIDGE</u>
---	--	--	--	--

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: MT 1340

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>2325</u>	PSIG. FOR <u>4-15</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____
AIR/GAS SEAT TEST	SEAT #1 @ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	
	SEAT #2 @ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @ _____ PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @ _____ PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN @ 0 PSIG.	_____ FT.-LBS TO CLOSE @ 0 PSIG.
EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____			

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD.	PILOT SN _____		
	VALVE ASSEMBLED BY: <u>1-2 START</u>	DATE: _____		
	VALVE TESTED BY: <u>Vino Sank</u>	DATE: <u>12-4-14</u>		
	TEST WITNESSED BY: <u>mblth</u>	DATE: <u>12-4-14</u>		



COMMENTS: PG# 0240 open - close
198 - 198 seconds

PRODUCT: ☒ GATE ☐ DAN-FLO ☐ EX-GATE ☐ BALLTROL ☐ CEG ☐ BALL ☐ CHECK ☐ OTHER _____	SIZE: <u>11</u> <u>24</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 900 ☐ 300 ☐ 1500 ☐ 400 ☐ 2500 ☒ 600 ☐ OTHER _____	ENDS: ☐ FXP ☒ WXW ☐ WXF ☐ _____	SERIAL NO. <u>1600002953698</u> S.O. NO. <u>188851510-20-25</u> CUSTOMER <u>ENBRIDGE</u>
---	--	--	--	--

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: 1A1740

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>2325</u>	PSIG. FOR <u>4-25</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____
AIR/GAS SEAT TEST	SEAT #1 @ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	
	SEAT #2 @ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @ _____ PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @ _____ PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN @ 0 PSIG.	_____ FT.-LBS TO CLOSE @ 0 PSIG.
EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____			

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD.	PILOT SN _____		
	VALVE ASSEMBLED BY: <u>1-2 SHIPT</u>	DATE: _____		
	VALVE TESTED BY: <u>Vino Smith</u>	DATE: <u>12-4-14</u>		
	TEST WITNESSED BY: <u>Mike R...</u>	DATE: <u>12-4-14</u>		



COMMENTS: 196 Sol 196 Sol
open - close

PRODUCT: ☒ GATE ☐ DAN-FLO ☐ EX-GATE ☐ BALLTROL ☐ CEG ☐ BALL ☐ CHECK ☐ OTHER _____	SIZE: <u>24"</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 900 ☐ 300 ☐ 1500 ☐ 400 ☐ 2500 ☒ 600 ☐ OTHER _____	ENDS: ☐ FXF ☒ WXXW ☐ WXF ☐ _____	SERIAL NO. <u>1000002953699</u> S.O. NO. <u>1888515-10-20-25</u> CUSTOMER <u>ENBRIDGE</u>
---	--	--	---	---

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: HT 1340

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>23.25</u>	PSIG. FOR <u>4-5</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CRO024</u>	
	HYDROSTATIC SEAT TEST	SEAT #1	@ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CRO024</u>
		SEAT #2	@ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CRO024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CRO024</u>	
	AIR/GAS SHELL TEST	@ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	
	AIR/GAS SEAT TEST	SEAT #1	@ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____
SEAT #2		@ _____	PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @ _____ PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @ _____ PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @ _____ PSIG.	☐ OK
		_____ FT.-LBS TO OPEN @ 0 PSIG.	_____ FT.-LBS TO CLOSE @ 0 PSIG.
EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____			

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD.	PILOT SN _____		
	VALVE ASSEMBLED BY: <u>1-2-SHIP</u>	DATE: _____		
	VALVE TESTED BY: <u>Ving Smith</u>	DATE: <u>12-4-14</u>		
	TEST WITNESSED BY: <u>Muhler</u>	DATE: <u>12-4-14</u>		



COMMENTS: PG# 0240 open - close
1975x 1975x

[illegible]

PRODUCT: ☒ GATE ☐ DAN-FLO ☐ EX-GATE ☐ BALLTROL ☐ CEG ☐ BALL ☐ CHECK ☐ OTHER	SIZE: <u>24"</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 900 ☐ 300 ☐ 1500 ☐ 400 ☐ 2500 ☒ 600 ☐ OTHER	ENDS: ☐ FXF ☒ WXW ☐ WXF ☐	SERIAL NO. <u>1000002953700</u> S.O. NO. <u>1888515-10-20-25</u> CUSTOMER <u>ENBRIDGE</u>
---	--	--	--	---

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: HT 1940

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>2350</u>	PSIG. FOR <u>4.25</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @	PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @	PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	FT.-LBS TO OPEN VALVE WITH SEAT #1 @	PSIG.	☐ OK
		FT.-LBS TO OPEN VALVE WITH SEAT #2 @	PSIG.	☐ OK
		FT.-LBS TO OPEN @ 0 PSIG.	FT.-LBS TO CLOSE @ 0 PSIG.	
EXPANDING GATE VALVE OPERATOR TORQUE SETTING:				

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE	PSIG. @	PSIG. N2 LD.	PILOT SN
	VALVE ASSEMBLED BY:	<u>1-2 SHIPT</u>	DATE:	
	VALVE TESTED BY:	<u>Vince Smith</u>	DATE:	<u>12-6-14</u>
	TEST WITNESSED BY:	<u>David Rich</u>	DATE:	<u>12-6-14</u>



COMMENTS: OP# 0240 open - close
197 - 197 seconds

PRODUCT: ☒ GATE ☐ EX-GATE ☐ CEG ☐ CHECK ☐ OTHER	☐ DAN-FLO ☐ BALLTROL ☐ BALL	SIZE: <u>24"</u> MODEL: <u>M803</u>	CLASS: ☐ 150 ☐ 300 ☐ 400 ☒ 500 ☐ OTHER	ENDS: ☐ FXF ☒ WXX ☐ WXF ☐	SERIAL NO. <u>100002953701</u> S.O. NO. <u>1882515-10-20-25</u> CUSTOMER <u>ENBRIDGE</u>
--	--	--	---	--	---

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: HT 1340

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>2950</u>	PSIG. FOR <u>4-5</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2 @ <u>1700</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1700</u>	PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.
AIR/GAS SEAT TEST	SEAT #1 @	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.	
	SEAT #2 @	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.	

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @	PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @	PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @	PSIG.	☐ OK
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @	PSIG.	☐ OK
		_____ FT.-LBS TO OPEN @ 0 PSIG.	_____ FT.-LBS TO CLOSE @ 0 PSIG.	
EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____				

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD.		PILOT SN _____	
	VALVE ASSEMBLED BY: <u>1-2 SHIFT</u>	DATE: _____		
	VALVE TESTED BY: <u>Vino Sant.</u>	DATE: <u>12-6-14</u>		
	TEST WITNESSED BY: <u>nicholas</u>	DATE: <u>12-6-14</u>		

COMMENTS: PG#0240 open close
197 - 197 Seconds

PRODUCT: ☒ GATE ☐ DAN-FLO ☐ EX-GATE ☐ BALLTROL ☐ CEG ☐ BALL ☐ CHECK ☐ OTHER _____		SIZE: <u>11</u> <u>24</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 900 ☐ 300 ☐ 1500 ☐ 400 ☐ 2500 ☒ 600 ☐ OTHER _____	ENDS: ☐ FXF ☒ WXW ☐ WXF ☐ _____	SERIAL NO. <u>1000002953702</u> S.O. NO. <u>1882515-10-20-25</u> CUSTOMER <u>ENBRIDGE</u>	
PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: <u>MT B40</u>						
VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC						
PRESSURE TESTING	HYDROSTATIC SHELL TEST		@ <u>2350</u> PSIG. FOR <u>425</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1	@ <u>1750</u> PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2	@ <u>1700</u> PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS	@ <u>1700</u> PSIG. FOR <u>5</u>	☐ HR ☒ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@ _____ PSIG. FOR _____		☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____
	AIR/GAS SEAT TEST	SEAT #1	@ _____ PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____
SEAT #2		@ _____ PSIG. FOR _____	☐ HR ☐ MIN	☐ TEST OK	GAGE NO. _____	
FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @ _____ PSIG.		☐ SEAT RETEST OK		
		VALVE OPENED WITH SEAT #2 @ _____ PSIG.		☐ SEAT RETEST OK		
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @ _____ PSIG.		☐ OK		
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @ _____ PSIG.		☐ OK		
		_____ FT.-LBS TO OPEN @ 0 PSIG.		_____ FT.-LBS TO CLOSE @ 0 PSIG.		
		EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____				
VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE		☒ YES	BOLTING TIGHTNESS AFTER TEST ? ☒ OK		
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD. PILOT SN _____					
	VALVE ASSEMBLED BY: <u>1-2 SHAFI</u>		DATE: _____			
	VALVE TESTED BY: <u>Vino Saff</u>		DATE: <u>12-6-14</u>			
TEST WITNESSED BY: <u>Gulab [Signature]</u>		DATE: <u>12-6-14</u>				
COMMENTS: <u>PG# 0240</u> <u>open - close</u> <u>197 - 197</u> <u>seconds</u>						

PRODUCT: ☒ GATE ☐ EX-GATE ☐ CEG ☐ CHECK ☐ OTHER	☐ DAN-FLO ☐ BALLTROL ☐ BALL	SIZE: <u>11</u> <u>24</u> MODEL: <u>M303</u>	CLASS: ☐ 150 ☐ 300 ☐ 400 ☒ 600 ☐ OTHER	ENDS: ☐ FFX ☒ WXXW ☐ WXF ☐	SERIAL NO. <u>000002953703</u> S.O. NO. <u>1888515-10-20-25</u> CUSTOMER <u>ENBRIDGE</u>
--	--	--	---	---	--

PRESSURE/FUNCTIONAL TESTING PER: ☒ API 6D ☐ ANSI B16.34 ☒ M&J/CUST. SPEC: HT 1340

VALVE OPERATED BY: ☐ TEMPORARY OPERATOR ☐ BGO ☒ ELECTRIC ☐ HYDRAULIC

PRESSURE TESTING	HYDROSTATIC SHELL TEST	@ <u>2350</u>	PSIG. FOR <u>4.25</u>	☒ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	HYDROSTATIC SEAT TEST	SEAT #1 @ <u>1750</u>	PSIG. FOR <u>5</u>	☐ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
		SEAT #2 @ <u>1700</u>	PSIG. FOR <u>5</u>	☐ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	BLOCK & BLEED	BOTH SEATS @ <u>1700</u>	PSIG. FOR <u>5</u>	☐ HR ☐ MIN	☒ TEST OK	GAGE NO. <u>CR0024</u>
	AIR/GAS SHELL TEST	@	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.
AIR/GAS SEAT TEST	SEAT #1 @	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.	
	SEAT #2 @	PSIG. FOR	☐ HR ☐ MIN	☐ TEST OK	GAGE NO.	

FUNCTIONAL TESTING	PULL TEST	VALVE OPENED WITH SEAT #1 @	PSIG.	☐ SEAT RETEST OK
		VALVE OPENED WITH SEAT #2 @	PSIG.	☐ SEAT RETEST OK
	TORQUE TEST	_____ FT.-LBS TO OPEN VALVE WITH SEAT #1 @ _____ PSIG.	☐ OK	
		_____ FT.-LBS TO OPEN VALVE WITH SEAT #2 @ _____ PSIG.	☐ OK	
		_____ FT.-LBS TO OPEN @ 0 PSIG.	_____ FT.-LBS TO CLOSE @ 0 PSIG.	
EXPANDING GATE VALVE OPERATOR TORQUE SETTING: _____				

VERIFICATION	VALVE STROKE FULL OPEN / FULL CLOSE	☒ YES	BOLTING TIGHTNESS AFTER TEST ?	☒ OK
	SET PRESSURE _____ PSIG. @ _____ PSIG. N2 LD.	PILOT SN _____		
	VALVE ASSEMBLED BY: <u>1-2-SHPT</u>	DATE: _____		
	VALVE TESTED BY: <u>Vine Sath</u>	DATE: <u>12-6-14</u>		
	TEST WITNESSED BY: <u>Malik</u>	DATE: <u>12-6-14</u>		

COMMENTS: PG# 0240 open close 196 - 196 seconds

Company: SPX Flow Technology	Doc #: 40962	Print #: 000-001
Address: 8800 Westplain Dr. houston, TX	OEM #: 242E-48994	Serial #: CR-0024
Zip: 77041	Contact:	Location: M&J Assy & Test
Page: 1 of 1	Dept:	Mfg.: OGME
	Cal.Date: 11/20/2014	Model: 0 - 5,000 PSI
	PO#:	Gage: Chart Recorder

As Found

Master	Actual	Deviation	Serial	Tol +50.000000 / -50.000000
+1250.000000	N/A	N/A		
+2500.000000	N/A	N/A		
+3750.000000	N/A	N/A		
+5000.000000	N/A	N/A		

As Left

Master	Actual	Deviation	Serial	Tol +50.000000 / -50.000000
+1250.000000	N/A	N/A		
+2500.000000	N/A	N/A		
+3750.000000	N/A	N/A		
+5000.000000	N/A	N/A		

Comments:

Calibration Procedure CAL - 0019 Latest Rev.
Temperature verified at 75 deg F

We certify the equipment used for this calibration is traceable to NIST through one or more of the following numbers:

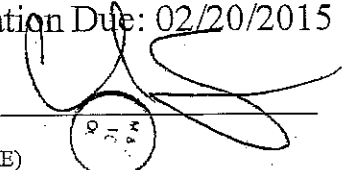
Reference Standard Serial #: Thermo-Temp. Inc.
Outside Calibration Source
Traceable to NIST via NAMAS certification no:

Last / Next Cal Dates: 01/01/2000 --> 01/01/2015

Gage Status: PASS

Next Calibration Due: 02/20/2015

Certified By: Chris Saenz

Signature: 

This certificate is not valid unless all 1 page(s) are present:

We certify that the aforementioned gage has been calibrated according to the requirements of ISO 10012 -1 : 2003 (E)

THERMO-TEMP, INC.
813-A Woodcrest Houston, Texas 77018

Form F-16
Revision No. 0
Date: January 09, 1995

Company: SPX PROCESS EQUIPMENT – HOUSTON OPERATIONS
Address: 19191 HEMPSTEAD HWY.
HOUSTON, TX 77040

REPORT NO. 22811

THERMO-TEMP, INC. HEREBY CERTIFIES THAT THE EQUIPMENT ITEMIZED BELOW HAS BEEN CALIBRATED TO MEET MANUFACTURER'S SPECIFICATIONS UNLESS NOTED OTHERWISE.

MANUFACTURER: OGME

SERIAL NO: CR-0024

DESCRIPTION: 0-5K PSI/ 0-150 °F RECORDER

PURCHASE ORDER NO:

CALIBRATED BY: JEROMY HOLMAN

ATTENTION: DOUG ROEBER

CALIBRATION DATE: 11/20/2014

DUE DATE: 05/20/2015

STANDARDS USED	MODEL NO.	SERIAL NO.	NIST #'S	RECALL DATE	
DHI	RPM4 – A280MsL	925	1500162359	03/24/2015	
EXTACH	44550	22455/TL179	19207	10/15/2015	
FUNCTION MEASURED	TEST READING	INSTRUMENT READING	ERROR FOUND	FINAL READING	REMARKS
PSI	1250	1250	0	1250	
	2500	2500	0	2500	
	3750	3750	0	3750	
	5000	5000	0	5000	
DEG F	75	68	-7	75	

The standards used in this calibration are traceable to NIST. The calibrations were performed to our Quality Assurance Manual Dated 02/28/12 Rev. 5. The work instruction used for calibration was Number 4.11.27 & 4.11.18 , Dated 08/01/03 , Rev 0.

This report shall not be reproduced, except in full, without the written approval of Thermo-Temp Incorporated

ACCURACY = +/- 1% F.S

COMPLIES WITH M&J VALVE SPEC. CAL-0019 REV.C

Company: SPX Flow	Doc #: 40576	Print #: 000-000
Technology	OEM #:	Serial #: PG-0240
Address: 8800 Westplain Dr.	Contact:	Location: M&J Assy & Test
houston, TX	Dept:	Mfg.: McDaniel
Zip: 77041	Cal.Date: 09/20/2014	Model: 0 -5000 PSI
Page: 1 of 1	PO#:	Gage: Pressure Gauge

As Found

Master	Actual	Deviation	Serial	Tol +50.000000 / -50.000000
+1250.000000	+1270.000000	+20.000000		
+2500.000000	+2522.000000	+22.000000		
+3750.000000	+3754.000000	+4.000000		
+5000.000000	+5012.000000	+12.000000		

As Left

Master	Actual	Deviation	Serial	Tol +50.000000 / -50.000000
+1250.000000	N/A	N/A		
+2500.000000	N/A	N/A		
+3750.000000	N/A	N/A		
+5000.000000	N/A	N/A		

Comments:

Calibration Procedure CAL - 0020 Latest Rev.

We certify the equipment used for this calibration is traceable to NIST through one or more of the following numbers:

Reference Standard Serial #: DWT-0003

Deadweight Tester 15 - 10,000 psig

Traceable to NIST via NAMAS certification no:

Last / Next Cal Dates: 08/21/2013 --> 08/21/2016

Reference Standard Serial #: calpg-0001

Digital Test Comparator Gauge 0-500

Traceable to NIST via NAMAS certification no:

Last / Next Cal Dates: 06/11/2014 --> 06/11/2015

Reference Standard Serial #: calpg-0002

Digital Test Comparator Gauge 0-2000

Traceable to NIST via NAMAS certification no:

Last / Next Cal Dates: 06/11/2014 --> 06/11/2015

Reference Standard Serial #: calpg-0003

Digital Test Comparator Gauge 0-10000

Traceable to NIST via NAMAS certification no:

Last / Next Cal Dates: 06/11/2014 --> 06/11/2015

Gage Status: PASS

Next Calibration Due: 12/20/2014

Certified By: Kevin Priesmeyer

Signature: 

This certificate is not valid unless all 1 page(s) are present:

We certify that the aforementioned gage has been calibrated according to the requirements of ISO 10012-1 : 2003 (E)

SPX
Flow Technology
HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 10 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

SPX Flow Technology certifies that the above were coated in accordance with SPX Flow Technology paint procedure PNT-3330.

DH/mt

Douglas Hinze

Douglas Hinze

Quality Control Supervisor



me
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com

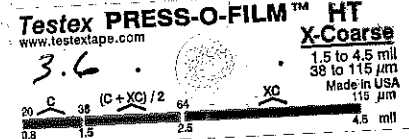
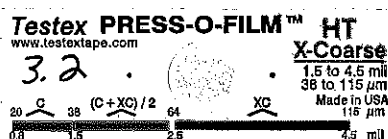
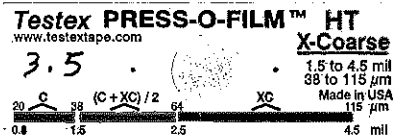


M & J VALVE

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

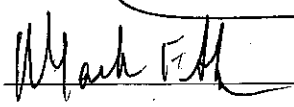
Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953697 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
Coating Spec SP-1		Sandblasting Spec SP-10	
Surface Profile Test Average 3		Date 12/8/14	
Time 10 AM	Relative Humidity 62%	Dew Temp 52	Valve Temp 80



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date		
									A	B			
PAINT PROCESS	Coat 1	SPC-2888	12/8/14	11 AM	58	87	87	62%	40	A	89560704	9/16	
										B	89570704	9/16	
	Coat 2									A			
										B			
	Coat 3										A		
											B		
	Coat 4										A		
											B		

METHOD OF TESTING Positector 6000	AVERAGE DFT 40	BLAST MEDIA
---	--------------------------	-------------

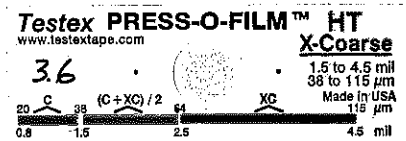
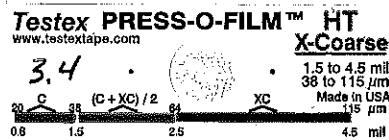
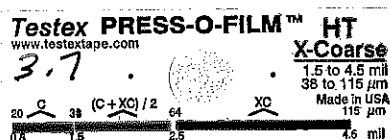
COMMENTS		
HOLIDAY INSPECTION	Method of Testing ☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test	Model Number
	☒ Any Holiday Repaired and Re-Inspected	Initials: JC
	☒ Witnessed by Customer or 3rd Party Inspector	Initials: AM
	☒ Coating Satisfactory for Shipping	Initials: VR

Inspected By: 	Date: 12/9/14
Witnessed By: 	Date: 12-10-14

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953698 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/8/14	
	Time 10 AM	Relative Humidity 62%	Due Temp 52 Valve Temp 80



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date	
									A	B		
PAINT PROCESS	Coat 1	SPC-2888	12/8/14	11 AM	58	87	87	62%	42	A	89560704	9/16
										B	89570704	9/16
	Coat 2									A		
										B		
	Coat 3									A		
										B		
	Coat 4									A		
										B		

METHOD OF TESTING Positector 6000	AVERAGE DFT 42	BLAST MEDIA
---	--------------------------	-------------

COMMENTS

HOLIDAY INSPECTION	Method of Testing		Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test		Initials: JC
	☒ Any Holiday Repaired and Re-Inspected		Initials: WZ
	☒ Witnessed by Customer or 3 rd Party Inspector		Initials: WZ

Inspected By:	Date: 12/9/14
Witnessed By:	Date: 12-10-14

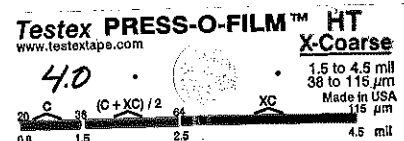
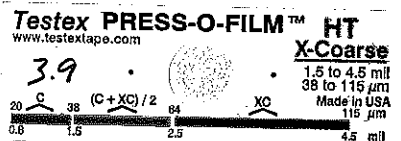
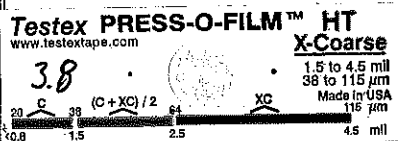


M & J VALVE

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953699 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/8/14	
	Time 10 AM	Relative Humidity 62%	Due Temp 52



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date
									A	B	
PAINT PROCESS	Coat 1	SPC-2888	12/8/14	11 AM	58	87	87	62%	53	A 89560704	9/16
										B 89570704	9/16
	Coat 2										
											A
	Coat 3										
	Coat 4										

METHOD OF TESTING Positector 6000	AVERAGE DFT 53	BLAST MEDIA
COMMENTS		

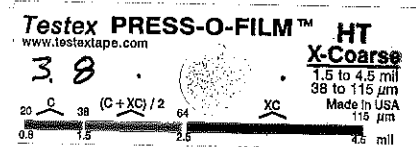
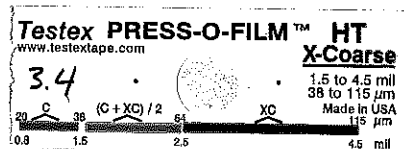
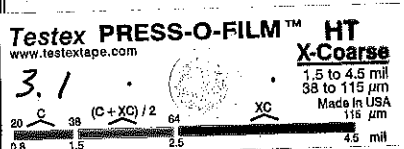
HOLIDAY INSPECTION	Method of Testing	Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test	Initials: JL
	☒ Any Holiday Repaired and Re-Inspected	Initials: W
	☒ Witnessed by Customer or 3 rd Party Inspector	Initials: W
☒ Coating Satisfactory for Shipping		
Inspected By:		Date: 12/9/14
Witnessed By:		Date: 12-10-14

M & J VALVE

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953700 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/10/14	
	Time 8 AM	Relative Humidity 62%	Due Temp 54 Valve Temp 71



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date	
									A	B		
PAINT PROCESS	Coat 1	SPC-2888	12/10/14	9 AM	61	83	83	50%	41	A	89560704	9/16
										B	89570704	9/16
	Coat 2									A		
										B		
	Coat 3									A		
										B		
	Coat 4									A		
										B		

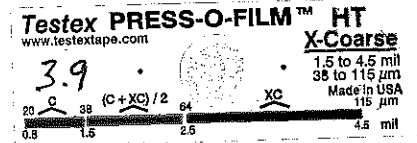
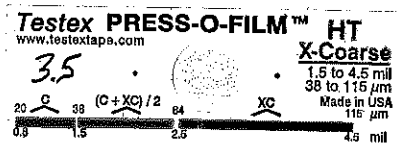
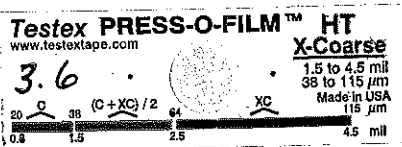
METHOD OF TESTING Positector 6000	AVERAGE DFT 41	BLAST MEDIA
COMMENTS		

HOLIDAY INSPECTION	Method of Testing		Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test		Initials: JC
	☒ Any Holiday Repaired and Re-Inspected		Initials: W
	☒ Witnessed by Customer or 3 rd Party Inspector		Initials: W
☒ Coating Satisfactory for Shipping			
Inspected By: [Signature]		Date: 12/10/14	
Witnessed By: [Signature]		Date: 12-10-14	

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953701 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/9/14	
	Time 8 AM	Relative Humidity 62 %	Due Temp 54 Valve Temp 71



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date	
									A	B		
PAINT PROCESS	Coat 1	SPC-2888	12/9/14	9 AM	61	83	83	50%	41	A	89560704	9/16
										B	89570704	9/16
	Coat 2									A		
										B		
	Coat 3									A		
										B		
	Coat 4									A		
										B		

METHOD OF TESTING Positector 6000	AVERAGE DFT 41	BLAST MEDIA
---	--------------------------	-------------

COMMENTS

HOLIDAY INSPECTION	Method of Testing		Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test		Initials: JC
	☒ Any Holiday Repaired and Re-Inspected		Initials: W
	☒ Witnessed by Customer or 3 rd Party Inspector		Initials: W

Inspected By: **[Signature]**

Date: **12/10/14**

Witnessed By: **[Signature]**

Date: **12-10-14**

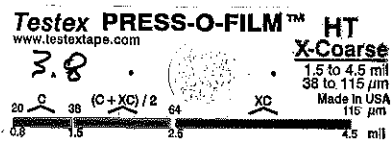
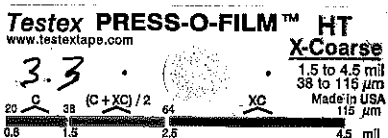
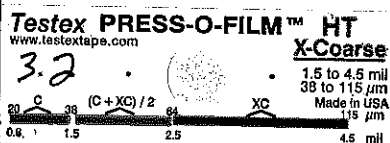


M & J VALVE

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953702 24" 600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/10/14	
	Time 8 AM	Relative Humidity 62%	Due Temp 54



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number		Exp. Date			
									A	B				
PAINT PROCESS	Coat 1	SPC-2888	12/10/14	9 AM	61	83	83	50%	40	A	89560704	9/16		
										B	89570704	9/16		
	Coat 2									A				
										B				
	Coat 3										A			
											B			
	Coat 4											A		
												B		

METHOD OF TESTING Positector 6000	AVERAGE DFT 40	BLAST MEDIA
COMMENTS		

HOLIDAY INSPECTION	Method of Testing	Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test	Initials: TC
	☒ Any Holiday Repaired and Re-Inspected	Initials: mu
	☒ Witnessed by Customer or 3 rd Party Inspector	Initials: m
☒ Coating Satisfactory for Shipping		
Inspected By: [Signature]		Date: 12/10/14
Witnessed By: [Signature]		Date: 12-10-14

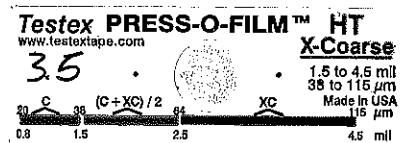
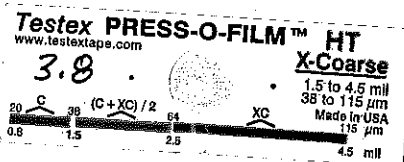
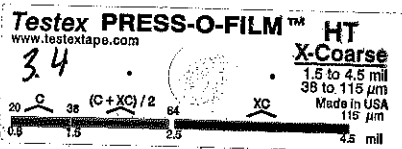


M & J VALVE

COATING INSPECTION FORM

The following inspection list must be completed on each valve.

Customer ENBRIDGE		Sales Order Number 1888515-10	
Serial Number 2953703 2411600	Coating Specification Number 3330	☐ Internal ☒ External	
PREPARATION	Coating Spec SP-1	Sandblasting Spec SP-10	
	Surface Profile Test Average 3	Date 12/9/14	
	Time 8 AM	Relative Humidity 62%	Due Temp 54



PAINT PROCESS	Coat Type	Date	Time	Dew Point (°F)	Temp (°F)	Valve Temp (°F)	Relative Humidity	ADTF	Batch Number	Exp. Date
	Coat 1	SPC-2888	12/9/14	9 AM	61	83	83	50%	56%	
	Coat 2									
	Coat 3									
	Coat 4									

METHOD OF TESTING

Posi-Tector 6000

AVERAGE DFT

56%

BLAST MEDIA

COMMENTS

HOLIDAY INSPECTION	Method of Testing		Model Number
	☒ Holiday Detector High Voltage / ☐ Low Voltage Wet Sponge / ☒ Salt Test		Initials: <i>JK</i>
	☒ Any Holiday Repaired and Re-Inspected		Initials: <i>mm</i>
	☒ Witnessed by Customer or 3 rd Party Inspector		Initials: <i>mm</i>
☒ Coating Satisfactory for Shipping			

Inspected By: *[Signature]*

Date: *12/10/14*

Witnessed By: *[Signature]*

Date: *12-10-14*

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
41.4mils
40.9mils
47.7mils
39.1mils
32.1mils
46.6mils
45.0mils
36.0mils
47.7mils
38.5mils
10
32.1mils
47.7mils
41.4mils
5.27mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
43.2mils
40.9mils
46.4mils
40.7mils
40.4mils
42.0mils
42.2mils
44.7mils
43.1mils
43.7mils
10
40.4mils
46.4mils
42.9mils
2.04mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
49.0mils
49.9mils
51.9mils
48.2mils
48.0mils
53.5mils
50.1mils
57.6mils
56.9mils
10
48.2mils
50.1mils
53.5mils
4.01mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
41.4mils
40.9mils
47.7mils
39.1mils
32.1mils
46.6mils
45.0mils
36.0mils
47.7mils
38.5mils
10
32.1mils
47.7mils
41.4mils
5.27mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
43.2mils
40.9mils
46.4mils
40.7mils
40.4mils
42.0mils
42.2mils
44.7mils
43.1mils
43.7mils
10
40.4mils
46.4mils
42.9mils
2.04mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
49.0mils
49.9mils
51.9mils
48.2mils
48.0mils
53.5mils
50.1mils
57.6mils
56.9mils
10
48.2mils
50.1mils
53.5mils
4.01mils

6000
S/N 621487

Probe Model: FR8
Probe S/N: 123064

11223344556677889910
Reading
61.4mils
42.4mils
62.6mils
66.4mils
60.0mils
69.8mils
70.4mils
61.1mils
63.6mils
69.5mils
10
60.0mils
70.4mils
56.4mils
10.1mils

SPX
Flow Technology
HOUSTON, TEXAS

CERTIFICATE OF COMPLIANCE

Date DEC 10 2014

Customer: ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

Purchase Order Number: P90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10	7	24" CL 600, MODEL M303 GATE VALVE.	1000002953697 THRU 1000002953703

Attached are the final inspection reports for the above.

DH/mt

Douglas Hinze

Douglas Hinze

Quality Control Supervisor



ME
12-12-14

M & J VALVE • COPES-VULCAN • GD CLOSURES
8800 Westplain Drive Houston, TX 77041 USA
PO Box 40421 • Houston, Texas 77240
Telephone: (281) 469-0550 • Fax: (281) 894-1332
Web Site: www.spxfc.com



SPX Flow Technology

Houston, Texas

BOLT TORQUE SUMMARY REPORT

Date: 12-4-14

Customer: ENBRIDGE

Purchase Order: P 90752-03089-14

Sales Order Number: 1888515

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10-20-25	3	2 1/2" 600	000002953699
			3698
			3697

Bolt Torque on the above has been checked and meets design requirements.

By: Vino Smith Title: TB51

M&J Valve ♦ Copes - Vulcan

8800 Westplain Drive, Houston, Texas 77041

P.O. Box 40421, Houston, Texas 77240

Phone: (281)469-0550 ♦ Fax: (281) 894-1332

Website: www.spxft.com



SPX Flow Technology

Houston, Texas

BOLT TORQUE SUMMARY REPORT

Date: 12-6-14

Customer: ENBRIDGE

Purchase Order: P90752-03089-14

Sales Order Number: 1888518

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Serial Number</u>
10-20-25	4	24" 600	1000002953700
			01
			02
			03

Bolt Torque on the above has been checked and meets design requirements.

By: Vino Sankh Title: TEST

M&J Valve ♦ Copes - Vulcan

8800 Westplain Drive, Houston, Texas 77041

P.O. Box 40421, Houston, Texas 77240

Phone: (281)469-0550 ♦ Fax: (281) 894-1332

Website: www.spxft.com

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953697	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE * WE (81.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY PART NUMBER 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060755	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED) ---

☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)

☒ STEM PACKING FEATURE

☒ SIDE HOLE FOR (REVERSE) GATE

☒ GATE BORE & THROUGH BORE IN ALIGNMENT

☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT

☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**

☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT

☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT

☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**

☒ BONNET, CUPOLA & YOKE NUTS TIGHT

☒ FLANGES FACES PARALLEL

☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---		PARTS FOR OPERATOR WITH VALVE ---

ADDITIONAL INFORMATION
102" & Bore to & HW.

☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED

☒ OPERATIONAL TEST

☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**

☒ MTR'S VERIFIED **Reg**

☒ TEST CERTIFICATE **Reg**

☒ TEST CHART **4.25 HOUR SHELL TEST**

☒ SPECIAL TAGGING : **GFA/DBB**

☒ TEST REPORT COMPLETED AND SIGNED

☒ VALVE SATISFACTORY FOR SHIPMENT

☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Officer



DATE

DEC 10 2014

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953698	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE*WE (81.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY PART NUMBER 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060745	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED)

☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)☒ STEM PACKING FEATURE☒ SIDE HOLE FOR (REVERSE) GATE☒ GATE BORE & THROUGH BORE IN ALIGNMENT☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**☒ BONNET, CUPOLA & YOKE NUTS TIGHT☒ FLANGES FACES PARALLEL☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---		PARTS FOR OPERATOR WITH VALVE ---

ADDITIONAL INFORMATION

102" & Bore to & HW.☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED☒ OPERATIONAL TEST☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**☒ MTR'S VERIFIED **Reg**☒ TEST CERTIFICATE **Reg**☒ TEST CHART **4.25 HOUR SHELL TEST**☒ SPECIAL TAGGING : **6FA/DBB**☒ TEST REPORT COMPLETED AND SIGNED☒ VALVE SATISFACTORY FOR SHIPMENT☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Osteri

DATE

DEC 10 2014

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953699	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE*WE (21.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY 7.421389	TYPE OPERATOR L+Q L120-85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060747	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED)

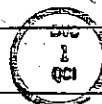
☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)☒ STEM PACKING FEATURE☒ SIDE HOLE FOR (REVERSE) GATE☒ GATE BORE & THROUGH BORE IN ALIGNMENT☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**☒ BONNET, CUPOLA & YOKE NUTS TIGHT☒ FLANGES FACES PARALLEL☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---		PARTS FOR OPERATOR WITH VALVE ---

ADDITIONAL INFORMATION

102" & Bore to & HW.☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED☒ OPERATIONAL TEST☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**☒ MTR'S VERIFIED **Reg**☒ TEST REPORT COMPLETED AND SIGNED☒ VALVE SATISFACTORY FOR SHIPMENT☒ TEST CERTIFICATE **Reg**☒ TEST CHART **4.25 HOUR SHELL TEST**☒ SPECIAL TAGGING : **GFA/DBB**☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Ottum

DATE

DEC 10 2014

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953700	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE*WE (21.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060752	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED)

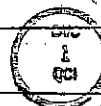
☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)☒ STEM PACKING FEATURE☒ SIDE HOLE FOR (REVERSE) GATE☒ GATE BORE & THROUGH BORE IN ALIGNMENT☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**☒ BONNET, CUPOLA & YOKE NUTS TIGHT☒ FLANGES FACES PARALLEL☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---	PARTS FOR OPERATOR WITH VALVE ---	

ADDITIONAL INFORMATION

102" & Bore to & HW.☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED☒ OPERATIONAL TEST☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**☒ MTR'S VERIFIED **Reg**☒ TEST REPORT COMPLETED AND SIGNED☒ VALVE SATISFACTORY FOR SHIPMENT☒ TEST CERTIFICATE **Reg**☒ TEST CHART **4.25 HOUR SHELL TEST**☒ SPECIAL TAGGING : **GFA/DBB**☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Q. HuiDATE **DEC 10 2014**

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10
SERIAL NO. 1000002953701	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303
SERIES 600		END CONNECTION WE*WE (81.75" F/F)
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"
FINAL ASSEMBLY PART NUMBER 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR	
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060748	OPERATOR TIME: (OPEN) 207 SECONDS
		(CLOSED)

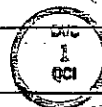
☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)☒ STEM PACKING FEATURE☒ SIDE HOLE FOR (REVERSE) GATE☒ GATE BORE & THROUGH BORE IN ALIGNMENT☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**☒ BONNET, CUPOLA & YOKE NUTS TIGHT☒ FLANGES FACES PARALLEL☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---	PARTS FOR OPERATOR WITH VALVE ---	

ADDITIONAL INFORMATION

102" & Bore to & HW.☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED☒ OPERATIONAL TEST☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**☒ MTR'S VERIFIED **Reg**☒ TEST REPORT COMPLETED AND SIGNED☒ VALVE SATISFACTORY FOR SHIPMENT☒ TEST CERTIFICATE **Reg**☒ TEST CHART **4.25 HOUR SHELL TEST**☒ SPECIAL TAGGING : **6FA/DBB**☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

OttumDATE **DEC 10 2014**

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953702	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE * WE (81.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY PART NUMBER 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060746	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED)

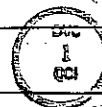
- ☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)
- ☒ STEM PACKING FEATURE
- ☒ SIDE HOLE FOR (REVERSE) GATE
- ☒ GATE BORE & THROUGH BORE IN ALIGNMENT
- ☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT
- ☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**
- ☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT
- ☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT
- ☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**
- ☒ BONNET, CUPOLA & YOKE NUTS TIGHT
- ☒ FLANGES FACES PARALLEL
- ☒ FLANGE HOLES STRADDLE CENTERLINE
- Socket WELD BELOW GROUND CONNECTIONS w/ CHANNEL IRON**

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---		PARTS FOR OPERATOR WITH VALVE ---
ADDITIONAL INFORMATION 102" & Bore to & HW.				

☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED

- ☒ OPERATIONAL TEST
- ☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**
- ☒ MTR'S VERIFIED **Reg**
- ☒ TEST CERTIFICATE **Reg**
- ☒ TEST CHART **4.25 HOUR SHELL TEST**
- ☒ SPECIAL TAGGING : **6FA/DBB**
- ☒ TEST REPORT COMPLETED AND SIGNED
- ☒ VALVE SATISFACTORY FOR SHIPMENT
- ☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Osteri

DATE

DEC 10 2014

CUSTOMER INSP.

DATE RELEASED

THE FOLLOWING INSPECTION LIST MUST BE COMPLETED ON EACH VALVE PRIOR TO SHIPMENT:

CUSTOMER ENBRIDGE PIPELINES (NORTH DAKOTA) LLC		SALES ORDER NO. 1888515 - 10	
SERIAL NO. 1000002953703	DATE REQUIRED 12-05-2014	SIZE & MODEL 24" M303	
SERIES 600		END CONNECTION WE * WE (81.75" F/F)	
PIPE THICKNESS .375" WALL		BEVELED TO MATCH .375"	
FINAL ASSEMBLY PART NUMBER 7.421389	TYPE OPERATOR L+Q L120.85/40-2P/V5 ACTUATOR		
CYL. SERIAL NO. ---	POWER UNIT SERIAL NO. L1060756	OPERATOR TIME: (OPEN) 207 SECONDS	(CLOSED)

☒ SERIAL NUMBER (NAME TAG, BODY BOLTING FLANGE, UPPER FLANGE)☒ STEM PACKING FEATURE☒ SIDE HOLE FOR (REVERSE) GATE☒ GATE BORE & THROUGH BORE IN ALIGNMENT☒ BOTTOM BLOWDOWN ASSEMBLY INSTALLED AND TIGHT☒ GREASE FEATURE INSTALLED AND TIGHT **ECV**☒ BOTTOM DRAIN PLUG INSTALLED AND TIGHT☒ STEM SEAL VENT PLUG INSTALLED AND TIGHT☒ STEM PROTECTOR WITH CAP INSTALLED AND TIGHT **CLEAR PLASTIC**☒ BONNET, CUPOLA & YOKE NUTS TIGHT☒ FLANGES FACES PARALLEL☒ FLANGE HOLES STRADDLE CENTERLINE

SAND BLAST ☒	PNT-3259	PROTECTIVE COATING ☒	TYPE PNT-3330	THICKNESS 25-80 MILS
VALVES SHIPPED LESS OPERATOR ---		UPPER YOKE FLANGE, OK ---		PARTS FOR OPERATOR WITH VALVE ---
ADDITIONAL INFORMATION 102" & Bore to & HW.				

☒ TORQUE TEST REQUIRED ☒ CHAINLOCKING DEVICE REQUIRED☒ OPERATIONAL TEST☒ VALVE WITNESS TESTED BY CUSTOMER **Reg**☒ MTR'S VERIFIED **Reg**☒ TEST REPORT COMPLETED AND SIGNED☒ VALVE SATISFACTORY FOR SHIPMENT☒ TEST CERTIFICATE **Reg**☒ TEST CHART **4.25 HOUR SHELL TEST**☒ SPECIAL TAGGING : **GFA/DBB**☒ API MONOGRAM REQUIRED ; AFFIXED ☒

INSPECTED BY

Othman

DATE

DEC 10 2014

CUSTOMER INSP.

DATE RELEASED

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953697		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-008.50-80-V-1
HYDRO TEST# 80-14-01
SHELLTEST@2325 PSI/4.25HR

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953698		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-008.70-80-V-1
HYDRO TEST# 80-14-02
SHELLTEST@2325 PSI/4.25HR

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953699		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-023.50-80-V-1
HYDRO TEST# 80-14-03
SHELLTEST@2325 PSI/4.25HR

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953700		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-028.90-80-V-1
HYDRO TEST# 80-14-04
SHELLTEST@2350 PSI/4.25HR

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953701		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-067.60-80-V-1
HYDRO TEST# 80-14-05
SHELLTEST@2350 PSI/4.25HR

SPX

>M&J Valve

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F / F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953702		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4.25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-070.80-80-V-1
HYDRO TEST# 80-14-06
SHELLTEST@2350 PSI/4.25HR

SPX**>M&J Valve**

ISO 14313



HOUSTON, TEXAS

PATENTED: 5,163,655 AND 6,164,622

SIZE	CLASS	MODEL	API	F/F
24"	600	M-303	6D	81.75"
BODY	GATE	SEAT	STEM	SEAL
X-70	A-516	A-350	4140	LT/BUNA
TEMP	-50F	+150F		
MOP	1480 PSI	1415 PSI		
DATE MFG	LICENSE NO	SERIAL NUMBER		
02/15	6D-0079	1000002953703		

DBB/FIRESAFE/SHELLTEST @2275 PSI/4 25 HR

PO# P90752-03089-14
FUNC. TAG# EFRD-091.20-80-V-1
HYDRO TEST# 80-14-07
SHELLTEST@2350 PSI/4.25HR